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THE PRINCIPLES

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AND

PRACTICE OF MEDICINE,

IN A

SERIES OF ESSAYS.

BY

JOHN W. HOOD, M.D.

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“By the union of study and practice, we attain a knowledge of the profession.”

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TO

SAMUEL JACKSON, M. D.,

Professor of the Institutes of Medicine in the University of Pennsylvania.

AS

A TOKEN OF ESTEEM

FOR

HIS TALENTS AND MERITED DISTINCTION;

HIS AMITY AND MANY OTHER EXCELLENT QUALITIES,

THESE ESSAYS

ARE AFFECTIONATELY DEDICATED

BY

HIS ARDENT FRIEND,

THE AUTHOR.



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## PREFACE.

IN presenting to the Medical Profession this volume, I wish it understood that my object is not for the purpose of adding to the list of authors, but from a conviction that some of the causes of our maladies have been overlooked, or have not received the attention which their importance demands; and that several well known remedial agents have fallen into disuse, notwithstanding their value, and the rank they deserve in the catalogue of remedies. The want of arrangement may also require an apology: but, as the work is composed of practical essays, complete in themselves, and as I am without books of reference, I hope the authors whose opinions I have adopted, and the profession generally, will excuse the neglect of the courtesies usually bestowed, and the hurried manner with which the work is laid before them.

My sole object being the promulgation of the views I entertain upon matters relating to Medical Science, and having confined my mind to the substance, rather than the form—to the truth, rather than to the style of diction with which the essays are clothed, I hope the proper allowance will be made for any asperity of language, or peculiarity of style.

In pursuance of this object, I would therefore say, that I do not pretend to be wiser than others who have had similar advantages; but having made nature my study, the opinions I entertain and advocate have been chiefly derived from the teachings of the animal economy by post-mortem examinations, and the effect of morbid and remedial agents in clinical observations. Of the principles of the connection between the circulating and nervous systems, and the two tegumentary surfaces, I take a different view from the authors who have written on the subject; and where reference is made to the effect of the morbid agent upon the capillary vessels or nerves, I do not pretend to say which of the two systems is first deranged, as the fact if correctly shown, would be of no practical importance. The shock or impression made upon either, would simultaneously influence



the other, and where the capillary vessels and nerves are deranged, the discerning and secretory systems are incapacitated for the performance of their functions.

The reasons for the adoption of instruments and bandages in my practice, were chiefly from the afflictions I suffered in the early part of my life, and a desire to become acquainted with the cause of the diseases, I was called upon to treat. Being also subject to hemorrhage of the lungs, with a weak or inefficient digestive apparatus, and a morbid sensibility to the effect of heat, cold and moisture, I consulted the authors who had written upon the subject, together with the most experienced practitioners; but finding all deficient in their therapeutical treatment, I changed my course and commenced a regular post-mortem examination of the cases that died from chronic diseases. This course, though somewhat tedious, enabled me to discover that the theory upon which I had commenced my practice was wrong, and that constipation was probably the cause of many afflictions; that it derived its existence from a distension of the bowels, in some cases, and in others, from a gravitated condition, of the intestines with altered secretion of the liver.

But while thus investigating the subject, I was called to a case of bilious colic, which, while it confirmed my position led to further research. The disease had resisted the remedies usually employed, and the patient being covered with a cold clammy sweat, it was suggested that inversion of the body, or a suspension of it by the heels would give the desired relief. This was directed, and almost immediately the object was accomplished.

About that time the opinion of Dr. Abernethy on the importance of the digestive organs, and the salutary effects to be attained on the respiratory organs, by addressing our remedial agents through them, appeared so reasonable, (and as it was the prevailing doctrine,) I determined in my own case to give his views a trial. The cough and hemorrhage of the lungs required immediate attention, and by adhering to the principles, I was not long in discovering that the morbid sensibility had yielded, and by carefully observing the changes in the susceptibility to cold when the stomach and bowels were out of order, the fact presented itself, that cold, heat and moisture, could not affect any one as long as the vital laboratories were in harmonious action. Of this my own case

and that of the colic presented the proof. Frequently when in health I was suddenly reduced by a flow of blood from the lungs, which established morbid sensibility, and kept me under its influence until the system had time to recruit. This result being different from the causes laid down by the various writers, and finding myself with my medical colleagues, unable to cure our patients, many of whom were dying from functional disease, as was manifest by post-mortem examinations; I continued my investigations, and eventually came to the conclusion that if the profession could be made familiar with the natural laws of life, and with the organs, their position and functions, it would lead to a better adaptation of our remedial agents, and a more certain relief to the afflicted. Being also satisfied that the causes assigned by authors, were not consistent when contrasted with the physiological laws of the economy, and tested by practice, I determined for the future to direct my attention to the objects that might enable me to discover why the common elements which were created for the well-being of man, should be the most frequent cause of his painful maladies; why, at one time we can withstand the action of the frigid zone, and at

another, through the ability of the vital functions, resist heat increased to a surprising degree! as has been demonstrated by the experiments of the fire king.

After making myself familiar with the external signs, and after ascertaining the seat of disease, as far as morbid appearance reveals such location, I cautiously approached my medical colleagues for their opinions upon minor points; but without giving me any opinions of their own, at least two thirds of them referred me to the opinions of some favorite writer, and of course forced me back to my clinical observations and post-mortem examinations; and I now submit them to the profession for further investigation, or criticism, as may be thought proper. But whatever may be the result, it cannot change the natural laws of the animal economy upon which these essays are based. Fine spun theories frequently mislead the weak, and obscure the pathway of the medical student; but as it is through the mass of theories that truth has reached the light, these should not be discarded unless founded upon vague hypothesis. What we believe, we have found to be true, both in theory and practice, and our energies should be directed to new objects, calculated by reason and analogy

to establish a complete system. The power of prejudice is however a barrier, and while aware of the difficulty of overcoming it, I have experienced the facility with which leading interests become alarmed at what are thought to be innovations in theory and practice. But without dwelling upon the selfishness or caprice of man, it is my belief that no one should withhold or conceal a discovery that is calculated to mitigate the afflictions of his fellow men. The obscurity of our science and the fallibility of human reasoning, not only call for careful investigation, but a generous dissemination of light and truth. But should our judgment be warped by prejudice, or too much regard for dignity, and our mental energies encumbered by erroneous notions and doctrines, it is impossible we should advance, or exalt the character of our profession. Hence I believe that the professional importance of the practitioner is derived from a knowledge of the laws that govern the animal economy, and from the judicious employment of remedial agents, in the cure of disease.

Books on the theory and practice of medicine, should treat each disease under a separate head, and the uncertainty of medical science should



excite the ambition of writers to the discovery of such medical truths as might keep pace with the progress of the age. Each author, if possible, should at least endeavor to rank with those of the preceding age, and it would be better for the profession if each contributor would give only what he has, or believes he has discovered, without borrowing, curtailing or extracting opinions already published. For instance, what advantage would the profession derive from a repetition in these essays of a description of the diseases which have their origin directly or indirectly from exhaustion or debility of the muscular system? All such diseases are already treated with a full history of their symptoms and seat, and require only a correct description of their causes and effects. But such an abridgment would reduce volumes to the dimension of pages; would discard the discussions upon ancient and obsolete customs, and theories long since exploded, and confine authors to such points as would enable the practitioner to approach the sick-bed without confusion or embarrassment.

With this view of the subject, it appears to me that the duty of both the physician and author, is to make himself thoroughly acquainted with the

anatomical structure—to examine the various tissues and organs, with their connections and relative bearings in health, and the effects of one upon the other—to look into the mechanical functions—watch their symmetrical and alternate movements—the conformation of the body in the three principal cavities—minutely examine the vital functions—test every secretion in health and disease, and thereby detect the departures, and apply the remedies that accord with the pathological condition. By such a course, it will be seen with what satisfaction to himself, and with what advantage to the afflicted, will the practitioner, thus qualified, be able to perform his duties. It will also be seen how necessary to his success, is a thorough knowledge of every science taught in our medical schools; and, how important to the character of the profession, to the wants and condition of humanity, are the qualifications of the professor. On these is suspended the fate of millions; hence no stubborn prejudice, no obsolete theories, or false hypotheses should be permitted to bias his instructions. He who teaches, should himself be learned; not in poetic fancies of the science, but in sound doctrine; in the laws of life, as found in the various constitutions of man.

Without the proper acquirements in the teacher, how can the profession be learned? will the medical student be able from the crude or badly digested views of the preceptor to seek for, and discover the new features that are every day presenting themselves in practice? Or will he be able to discover the rudiments of a science that is ever progressive, and must continue to progress until the principles of life, in their organized and organic movements, are fully comprehended?



## ANATOMICAL ARRANGEMENT

AND

## CONFIGURATION OF THE BODY.



THE abdomen is the largest cavity in the human body, and contains within its parietes numerous and important organs, by whose combined action materials are elaborated for the sustenance and growth of man, against the waste that is constantly going on from infancy to old age. And the derangement of these organs, whether functional, physical, or organic, contributes the greatest source of the diseases with which mankind are afflicted. Hence an accurate knowledge of their functions and conditions, both normal and abnormal, is indispensably necessary to the judicious and successful treatment of the many diseases and disorders which originate in this cavity.

The form of the abdomen is oval, which often differs at different ages. It is bounded superiorly by the diaphragm, anteriorly and laterally, by the abdominal muscles; inferiorly, by the true and false pelvis; posteriorly, by the lumbar vertebræ, and crura of the diaphragm and psoas and quadratus lumborum muscles. Within this boundary is contained the peri-

tonæum, the organs of digestion, the kidneys, renal capsules, and uterus; also, the thoracic duct, the aorta, vena cava and the numerous branches of these vessels.

The peritonæum is a closed sac, and when opened presents one continued surface, which may be traced throughout the whole extent of the cavity of the abdomen and pelvis. It covers the viscera in such a manner, that they lie external, or posterior to it; so that the viscera is covered by the peritonæum, and yet they really lie behind it when it is opened. Like all serous membranes, it is smooth and polished. It contains within its shut cavity only a serous fluid, which serves to lubricate its opposing surfaces. This membrane being the principal agent in giving the several organs their ligaments, in its evolutions, forms the various processes known by the following names, viz:—The lesser omentum, the greater omentum, the splenic omentum, the colic omentum, the appendiculæ epiploicæ, the transverse mesocolon, the right and left lumbar mesocolon, and the mesentery, which is the largest and most remarkable process of the peritonæum. This portion is continuous with the descending layer of the mesocolon, that extends from the left side of the second lumbar vertebra downwards to the right iliac fossa. This is what is known as the root of the mesentery. At this point the peritonæum extends and enfolds the jejunum and ileum, from which it returns to the spine, forming a junction at the root; and between the mesenteric foldings are arteries, veins, nerves, absorbents, and glands. This fixed root of the mesentery supports the convolutions of the small intestines, besides the numerous vessels attached. When these processes, with their

relative parts are in a healthy state, they are retained in their respective places by the co-operation of other dependencies; and where these muscles become debilitated, the free portions of the peritonæum are forced, by many causes, from their natural position. These displacements, with those of the organs of the abdominal viscera, I am fully convinced, from various dissections, are the source of a numerous class of diseases. The stomach, besides its connections with the diaphragm and œsophagus, is attached to the spleen, by the splenic omentum, to the liver by the lesser omentum, and to the arch of the colon, by the greater omentum. The duodenum, or first intestine, commencing at the left terminus of the stomach below the pyloric orifice, ascends obliquely and in a backward direction to the right side beneath the edge of the liver, where it touches the gall-bladder. At this point it makes a sudden turn, which is described as its superior angle. From this, it descends in front of the right kidney as low as the third lumbar vertebra, where the inferior angle is found. From this transverse portion, it passes obliquely upwards to the right side, and at the first lumbar vertebra it terminates in the jejunum. Thus, the duodenum makes three flexures, between the first and second of which, by a common opening, it receives the bile and pancreatic fluid. It is here, also, that chylication is chiefly performed. The duodenum differs in several respects from the remaining portion of the small intestines, being fixed in its situation, and only partially covered by the peritonæum, and in its caliber, is much larger near the inferior angle. The lower part of the duodenum is easily dilated, and the biliary and pancreatic ducts per-

forate this division of the intestine obliquely opposite the inferior angle. This inferior portion crosses the aorta and the right renal vessels between the layers of the mesocolon, where the lower boundary may be seen. The superior mesenteric vessels pass in front of the termination and appear to compress it against the aorta, which retards the passage of its contents into the jejunum. The aliments which enter the duodenum, unless obstructed, must pass on slowly through it, favored by its position and the direction of its muscular fibres. Their passage is also accelerated by the action of the diaphragm upon the superior angle of the duodenum. In this intestine, there is but one point where a partial obstruction occurs, which is near its connection with the jejunum, where, if the aliment be retained too long, and become fermented, is the seat of those colics in which emetics act most favourably.

The next division of the intestine is the jejunum, which terminates in the ileum. These are similar in their configuration and anatomy, except that the jejunum is more vascular and feels thicker and larger than the ileum, which difference is apparent, when the commencement of the former is compared with the termination of the latter. These are divided only by an imaginary line, which makes the jejunum two thirds as long as the ilium. The jejunum, which is generally found empty, occupies the umbilical, the ileum the hypogastric and right iliac regions, where it terminates in the cæcum, which it appears to perforate, forming the ileo-cæcal valve, which being horizontal is so constructed as to prevent regurgitation from the colon.

These intestines being concave posteriorly, are attached at the root of the mesentery, while anteriorly their convolutions describing an oblong circle are left free to gravitate into the pelvis when unsupported by the abdominal muscles.

The anatomical arrangement of the intestines is such, when in their proper position, that their vermicular motion is aided by the abdominal muscles and diaphragm in propelling their contents through the ileo-cæcal valve and onwards. These intestines, then, being subject to fall into the pelvis, are the seat of those violent colics, so difficult to cure by the ordinary treatment. Many other diseases arise from the same cause, including dyspepsia, which are also difficult to cure by medicines alone. But by mechanical agents much may be done for the relief and cure of the large class of diseases which originate from visceral displacements, and a successful and extensive use of these agents for the last twenty-one years, confirms the theory already established by anatomical facts. The large intestine forms about one-fifth of the intestinal canal, and is subdivided into the cæcum, ascending colon, transverse colon, descending colon, sigmoid flexure of the colon, and rectum. From the cæcum to the termination of the colon, there is no marked distinction between the different divisions. The cæcum is situated in the right iliac fossa, in which region it is fixed by the peritonæum and cellular membrane. From the cæcum, the colon ascends to the inferior surface of the right lobe of the liver, at which it is attached. It thence forms a transverse arch across to the other side, anterior to the small intestines, being attached to the stomach through the



greater omentum in the middle, and at its left angle to the spleen. This arch of the colon crosses the inferior boundary of the epigastrium, and upper part of the umbilical region, and making an obtuse angle in the left hypochondrium, it becomes the descending colon, which being attached to the left kidney and psoas muscle, by the peritonæum and cellular membrane, extends to the left iliac region, forming the sigmoid flexure, which is connected but slightly and loosely in the iliac fossa.

The rectum commences at the left sacro-iliac junction, and extends from the sigmoid flexure of the colon to the anus. The direction of the rectum is oblique towards the middle line, as far as the lower end of the sacrum, where it curves and makes a forward direction to the perinæum, and turning down ends at the anus. The rectum is connected with the sacrum, coccygis, meso-rectum, bladder, vesiculæ seminales, prostate gland, and, in the female, to the uterus and vagina.—The inferior third of the rectum is devoid of attachment to the peritonæum, and at this portion it is generally found much dilated above the insertion of the levator ani muscle.

Having now traced the colon from the commencement to its termination, it is obvious that the contents are propelled onward by a different force from the one that propels them through the small intestines. When the anatomist reviews the muscular fibres, one set being circular, and another longitudinal, and when one part of the same bowel is ascending, while another is transverse, and a third descending, it presents a fair inference that the excrementitious materials are made to pass slowly through the ascending and transverse

portions, by the action of the longitudinal and circular fibres. By means of these fibres, the colon is constricted in part, and formed into saccated valves, which prevent, in the ascending colon, the weight of the excrement from overcoming the force below.

In the right half of the transverse colon, the saccated valves act as a check to the excrement, in passing this inclined part, and in the left half as a support in the upward movement. The contents in the descending colon, are also retarded in the downward tendency, by the saccated valves, otherwise their specific gravity would force them on with too much rapidity. The sigmoid flexure is also a checking point, or reservoir, which being assisted by the levator ani muscle, prevents the fæces from being constantly in contact with the sphincter muscles and nerves. Were it not for this wise arrangement there would be a continued disposition of the parts to discharge their contents. The large intestine, in its several divisions, is liable to obstructions, which invariably give rise to disease. The cæcum is liable to enlargement from the retention of its contents, which eventually establishes a chronic disease of the mucous membrane. The cause of this retention, is referable to the ascending colon—in the loss of tone in the tissues of which it is composed, a relaxed condition of the muscular parietes of the 'abdomen, and also in a debility of the propelling force of the small intestines.

The transverse colon is also subject to accumulations within its most pendulous portion, which give rise to the symptoms complained of by dyspeptics,—such as pain, first in the right, and then in the left hypochondrium, the sensation of dragging downward,

and of fulness and heat in the umbilical region. All of which symptoms I have speedily removed by giving support to the ascending and transverse colon, with mild aperients, and sometimes alteratives. ;

The descending colon is also obstructed by the displacement of the sigmoid flexure. This important reservoir, is as stated, in the left iliac fossa, and of course at the marginal brim of the pelvic cavity. But when overloaded, it is carried down into the pelvis where it was never designed it should be ; and where, by long neglect its attachments become debilitated and lengthened. After which, unless assisted, it remains within that cavity very much to the prejudice and discomfort of the patient. Thus situated, it is the cause of hæmorrhoids, and a sensation, after an evacuation, of fulness, until a movement of the intestines, or change of position replaces the flexure. This sigmoid flexure of the colon has been, and in my opinion, may be considered one of the principal causes of prolapsus uteri. In nine out of ten cases examined, the os tinæ was found inclined to the right, whilst the fundus was on the left side, and when we take into consideration the positions of the lateral ligaments of the uterus, with the sigmoid flexure resting upon it, it is but what we should expect from the anatomical arrangement of the parts when displaced. I therefore invite my medical brethren to examine the position of the os uteri, and rigidly test the facts. If they find them wrong, it will be but proper to proclaim it, and continue the practice that has hitherto tortured the female portion of our race ; but if my position should be confirmed, let those unsafe and indelicate remedies, founded on false hypothesis, be discarded forever from their prac-



tice, and the remedies that are based on anatomical facts be introduced in their stead.

Having thus briefly noticed the alimentary canal, in connection with the functions that regulate the movement of its contents, I proceed to the examination of the means by which these organs are retained in their appropriate places. But as the parietes of the abdomen are made up from muscles and fascial membranes, all of which are fully described in their origin, insertion, and arrangement of their fibres, it will suffice my purpose to enumerate the muscles, and give what experience has taught me in reference to their joint offices. The muscles that assist in sustaining the viscera of the abdomen, are the two external and two internal oblique, the two transversales, the rectus abdominis, the two pyramidales, the four serrati, the fibres making the intercostales, the two latissimus dorsi, in their connections with the muscles of the abdomen and diaphragm. A knowledge of the origin and insertion of these, with the mechanical functions as indicated by the direction of their fibres, is exceedingly important. The mechanical movement of the parts is what may be termed flexion and extension; the action produced by inspiration on the lower two thirds of the abdomen, is one of extension, which dilates it, and forces the parietes outward and downwards. Flexion occurs in expiration, where the upper third contracts, diminishing the abdomen, and compressing the viscera to their proper form and relative position. This movement depends in part upon a natural and involuntary elasticity and contractility of the muscles. These are also influenced to some extent, by habit and volition. So that by the natural action of their fibres, all the organs are re-

tained in their places, where they can perform their specific functions. Without this bandage-like protection and pressure of the muscles upon the viscera, very few of their functions could be carried on, nor would the equilibrium in the muscular system be preserved.

In the history of the diseases, with their pathological condition, it will be seen that some of the most desolating epidemics with which the human family have been afflicted, have had their origin within the cavity of the abdomen, and when we look at the number of organs it contains, their complicated structure, and at the importance of each group to the preservation of our health, we may ask, why they have escaped the critical attention of medical authors? In the development of the organs of the chest, nothing is left for conjecture; and is it not strange that so much attention and laborious research should have been expended upon the cause of diseases originating in the abdominal cavity, without even a reference to the gravitation of the viscera of the abdomen and its fluids? It is an established maxim, I believe, in the science of medicine, that a cause acting either chemically or mechanically, must in its action, have sufficient force to change the natural law of the parts, or the constituents of the fluids, before a morbid change is established. Hence the necessity of critically examining the effects of visceral displacement.

The organs within the cavity of the abdomen are not only more frequently the seat of disease than those located in the other cavities of the body, but in point of danger, are at least equal to those of the chest and brain. The delicacy of the capillary vessels, and the

numerous terminating extremities of the nerves, which are found in and upon the internal tunic of the intestines, render the latter highly susceptible to morbid action. From the relations of this part of the animal organization, and the incessant motion of the intestines, should we not look both for frequency and severity of disease, even if there were no possibility of displacement? During a practice of thirty years, my mind has been impressed with the fact, that two-thirds of our maladies may be traced to the unnatural action of the organs and tissues, produced by displacement. In no other cavity is there to be found primary inflammation so frequent, nor so many diseases from accidental disturbance. Even tubercles, which derive their origin from a hereditary latent diathesis, are called into action by the irritation of the intestinal canal, and root of the mesentery, and found upon examination of their morbid product, to be more numerous in the abdominal viscera, than in any other part of the system. In fevers of almost every grade, the bowels are distinctly marked by inflammation, or engorgements, and their mucous membranes, by increased thickness, or ulceration.

But in the examination of the abdomen and the organs therein contained, it is necessary we should make ourselves familiar with its external configuration, which, as before said, is of an oval form, and if we draw a transverse line, passing through the centre of the umbilicus, it will represent the base of the two half cones with their apices opposite, one at the pubis, and the other at the ensiform cartilage. By this division, and a familiarity with the organs, and the regions in which they are found, there will be no difficulty in de-

tecting the several misplacements of the viscera. The walls of the abdomen allow us by the touch to determine the position, size, and degree of sensibility; and whether there be any extraneous bodies contained within them. In the most healthy individuals, where bodily exertion has been used during the day, it will be found that the lower half cone of the abdomen is much increased in the hypogastric and inguinal regions, and a corresponding depression in the epigastric, with an increased fulness in the upper margin of the lumbar regions; but in the morning after resting in the recumbent posture, each portion will be restored to its natural position, unless the attachments have become so much distended as to impair the natural contractility of the muscles. The peritonæum to which all the organs of the abdomen are attached, being one of the smoothest surfaces, when lubricated with a healthy secretion, moves upwards and downwards upon itself, without our knowledge, and of course is dependent upon muscular power for the ability to perform its office. In my clinical pursuits I have observed many cases of fever produced by the displaced condition of the small intestines and transverse colon; and it may be regarded as a rule, that where the small intestines are forced below their primitive boundary, the transverse colon necessarily sinks to a greater or less extent; and where it is much displaced, it produces a contraction about two inches above the umbilicus. If the muscles are relaxed, or in cases of children of strumous habit, the patient becomes disfigured by the change of the viscera, and the walls of the abdomen, in the upper half, become distorted and contracted towards the spine. The lower half also,

loses its regularity ; and, like a sack filled at the lower end, with the upper portion fixed to the sternum and cartilaginous portion of the ribs, instead of the symmetrical oval figure, that gives to the human form its robust and harmonious appearance, it hangs like a pendulous inorganic substance, with the hypogastric and inguinal regions distended.

The mobility of the intestines, therefore, with the elasticity of the muscular movement, and the known axis of the body in relation to the true pelvis, should have taught the anatomist, that so soon as the loss of power takes place in the parietes of the abdomen, and the axis of the body is changed, the bowels in the lower boundary would be permitted to gravitate to the true pelvic cavity, and those in the upper, to the false cavity, producing unnatural deformity, and sapping as it were, the foundations of life. The mechanical functions of the walls of the abdomen, require that every tissue should be possessed of elasticity and contractility sufficient to allow the viscera, which the parietes protect and support, to increase their bulk without disturbing these functions, and in like manner, in a sudden reduction of the size of the viscera by the laws of contractility, the parietes are enabled to maintain the organs in harmonious contact, and preserve their symmetry of form.

But let the reader observe the haggard and emaciated appearance of a large number of those he meets, and let him inquire whether the predisposing cause is not the result of a morbid action upon the mucous membranes contained within the abdomen, which gives rise to a rapid absorption of the adipose matter, and cellular tissues, as is produced in tubercular consump-



tion. Then let him examine our position, and carefully look and contemplate the effects of a relaxation of the muscular walls of the abdomen—of the descent of the small intestines, sigmoid flexure, transverse colon, and omental processes, upon the inferior organs and tissues within the cavity—let him look upon the effect produced upon the stomach, the liver, the spleen, and upon the entire chylopoietic organs, under the influence of the gravitated solids and fluids—the motion and the changes that are necessary for the muscles of the abdomen to undergo, as a vital apparatus in sustaining the weight of the viscera—in resisting the action of the diaphragm; and let him examine the mechanical functions of the muscles destined to support and compress the organs, and then ask, what is the object and purpose of the arrangement, if it be not for the well-being of the economy? Let him further inquire why one set of fibres are so arranged as to act as extensors, while another performs the office of flexion?—and if it be not by the aid of the muscles and the peritonæum, that these organs are retained in situ, supported by relative dependencies and their reciprocal movements, and the harmony of the organism maintained, and its symmetry preserved?

Then if we take a comprehensive view of the organs of the abdomen, with a history of the diseases arising from a disturbance of the digestive apparatus, and look at the influence of the mucous membrane, the capillary vessels and nerves, upon the skin, we may readily see the necessity of their healthy action. The emunctories of the skin which separate the limpid fluid from the blood, and carry it off by insensible perspiration, perform an important office, which, if deranged,

influences the whole system. This function is often suspended by derangement of the viscera.

This is manifest in cutaneous diseases, which depend upon the state of the internal organs. The disturbance of the intestinal mucous membranes with the capillary vessels and nerves, is capable of deranging the healthy functions of the parts, though they are acting but in moderate force. In like manner, a change in one or more of the internal organs, not unfrequently establishes morbid action in remote parts of the system. Is it not then probable, that by allowing the viscera of the abdomen to gravitate from their proper position, the diseases which hitherto have been attributed to heat, cold, moisture, &c., may derive their origin from such displacement? In my practice I have been enabled to trace the origin of simple, continued bilious and inflammatory fevers to over exertion—too long standing in an erect attitude—as clerks at their desks, printers at their cases, shopkeepers at their counters, &c., which produce debility of the muscles, and consequently a gravitating tendency of the abdominal viscera and fluids.

What anatomist therefore, or physiologist, would venture to doubt the deranging influence of the abdominal viscera, notwithstanding there is a wise provision in nature, adapting the habit of the deranged parts to keep up a partial harmony? But when we make all allowance for this ability of nature, to alter the sensibility of the part, so that its derangement may not be noticed by the individual afflicted, can it be supposed that the functions of these altered organs, are what they should be? When we take into consideration the number of organs, and the several tis-

sues surrounding or forming a component part, all of which are endowed with peculiar sensibility, and possessed of the powers of vitality, in proportion to the constituent elements of which they are formed; and when we consider that the least alteration of any one will derange the others, and gradually spread over the whole animal economy a morbid influence, we may readily conceive that vital laboratories are contained in this cavity. Yet the author of "Females and their Diseases," says and believes, "that the endangium, membrane of the vessels, is the manufacturer of blood;" and without testing his theory upon himself, or without considering that the entire organism of man receives its support from the blood after it is elaborated by the chylopoietic and respiratory organs, he expends his illustrations upon Helen Blaque, who believes him, and dies of the *dry wilt*, for the purpose of establishing his theory. But as it is impossible to be serious in the contemplation of such romance, I regret the necessity that forces upon me the *extraordinary fancies* of the Professor, and instead of adopting his illustrations, it has been an object with me to seek the true source of diseases to which the human family are liable, and apply the appropriate remedies. In my researches, I have been astonished at the number of diseases originating from displaced organs, and I think those who are willing to observe, and be governed by the pathology and symptoms radiating from this source, will be alike surprised at the catalogue. In children it is well known that worms produce convulsions, and it is also known what is the effect upon the entire system of a protruded portion of the intestines through



the natural or preternatural opening. If a man who labours under hernia be asked what change it produces upon his sensibilities, when a portion of his bowels protrude, he will at once answer, "it saps as it were my entire strength, and if not returned I am incapacitated for business of any kind." And who among practical physicians has not observed the effect of strangulated hernia,—the violent order of the symptoms—their tendency to a speedy dissolution if not reduced, or if the stricture be not removed by the scalpel? Any dragging down, therefore, of the viscera of the abdomen, has a tendency to change the parts from a natural to a preternatural state—results which are manifest in various ways.

Having thus noticed the anatomical arrangement of most of the organs contained in the cavity of the abdomen, with their attachments and prominent connection, I now proceed to examine the external appearances, in health and in disease, as observed in my clinical pursuits. The external boundary of the abdomen we find, is over two thirds composed of muscles, fibres and membranes, with their several integuments; and if we examine the abdominal and respiratory muscles—their origin and insertion, as described by the anatomical writers, it will be seen they not only concur in the offices, but have assigned the mechanical functions, to sustain the viscera of the abdomen in their proper place, and thereby assist in the function of respiration. From the alternate action in inspiration and expiration, it will also be seen that in the former, the abdominal muscles are forced downwards and outwards, extending the capacity of the abdomen and chest, while in the movement of the latter, the upper

portion of the muscles act as flexors, and contract the cavity—compress the viscera obliquely upwards and backwards, and thereby force the diaphragm upward,—narrow the chest—compress the lungs, and by these involuntary movements, constitute expiration. In these mechanical functions, besides the compression of the viscera of the abdomen and chest, every organ is kept in its place, that the so called cavity may be one combined whole, or vacuum plenum, susceptible of distension and contraction by the symmetrical movements of the parietes. Thus, the organs are kept within their ellipsis, and from the anatomical arrangement of the diaphragm and spinal column, with its junction at the sacrum and pelvic bones, there must be an antagonizing point at the linea-ilio pectineal line. By the downward movement of the diaphragm, the force is thrown upon the upper marginal brim of the pubic bones, and at the line of the insertion of the oblique muscles, and their tendons, with the origin of the recti abdominal muscle. This fact is established by the axis of the body when in an erect position. The inclination from the promontory of the sacrum to the symphysis pubis is equal to an inclined plane of sixty degrees in the male, and fifty-five in the female. This inclination of the pelvic cavity at the marginal brim enables the abdominal muscles to sustain the weight of the viscera, and antagonize the force of the diaphragm. By this arrangement the viscera derive their principal support, and by which the organs are enabled to perform their several functions. Hence, the external configuration is owing to the size and location of the viscera, and the viscera are dependent upon the strength, elasticity, and contractility of the parietes, for their symmetrical

support. The arrangement of the peritonæum, in giving a coat to the organs, and fixing the attachments of the viscera, by the duplicatory ligaments, leaves the viscera free in many parts to allow the organs the freedom required in their mechanical or organic functions. Consequently the parietes adapt themselves, through their vital elasticity and contractility, to the size and position of the organs, and when in a healthy condition, we find the natural oval form of the trunk maintained and observed in the perfection of the human figure.

From a knowledge of the laws which govern the organs, and enable them to perform their specific functions, is it not strange that the various writers should have overlooked the cavity of the abdomen with its important assemblage of organs? all of which are dependent upon the voluntary or involuntary movements of the nine muscles, and the connection with the serratus and latissimus dorsi. Sir Charles Bell, in his researches on the nervous system, which presides over the respiratory muscles, conclusively assigns the functions, and why is it that the physiologist has not been called to the mechanical functions of this part of myology? The failure of these muscles invariably leads to the destruction of health, and eventuates more frequently in death, than from all other causes—yet it is not to be understood that the failure is the remote cause in all, but it becomes an exciting one in some, and an irritating contributor to every functional or constitutional disease. In the debilitated or exhausted power of those muscles, it has been already shown, the viscera and fluids gravitate, and by the mechanical functions, with the assistance of the intercostal muscles, diaphragm and mobility of the ribs, inspira-

tion and expiration are performed. Hence is it not evident and demonstrable that the lungs in their hinder and lower portions fail to dilate, and be traversed by the air? On such failures, which leave the blood in a pathological condition, is it not clear that the lower portion of the lungs becomes the seat of fatal congestions? Hence the importance of mechanical agents to assist the organs in this debilitated condition, until their lost energy is restored.

The failure of the organs of the abdomen is easily detected by a careful examination of the physiognomy of the patient. The strength of the body and the state of the mind, with the color and the condition of the skin, are indexes of prevailing malady. But having thus ascertained the condition as far as sight enables us to determine it, we next make a careful exploration of the chest, by percussion and auscultation. After which sight and touch is combined, and having determined by the first the configuration, we trace by the second the organs that are liable to displacement, and ascertain, if possible, their size and position. Such examination is absolutely necessary in cases where the predisposing or exciting cause is suspected to have originated in the gravitation of the solids and fluids; without such examination our prognosis must more frequently destroy the confidence of the patient than otherwise. The importance of the organs of those two cavities, demands the closest investigation, and if we expect to sustain the dignity of our profession, we must do it by mitigating or curing the afflictions of the human family. The want of such attention is already manifest in the lost confidence of the public, and in the rapid growth of new systems which may be as-

cribed to the inattention of the faculty, and the credulity of the public. But if we discover that the difficulty arises from hereditary taint, and the appearances are not of a character to define the cause, the habits of the patient, the age, sex, constitution, idiosyncrasy if any, and occupation, will enable us to judge correctly, and apply the agents adapted to the condition of the patient.

# CHRONIC DISEASES

## OF THE

### VISCERA OF THE ABDOMEN.

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As the history of subacute diseases has attracted the attention of the medical profession in all ages, owing, perhaps, to their insidiousness, their harassing tendency and fatality; and as the real cause of many of them, has hitherto been overlooked, or unnoticed by the medical authors who have written on the subject, I propose to show, in the following essay, what it is, the means for its prevention, and the indications of treatment, of the various diseases arising therefrom. In doing this, my object is simply to give an exhibit of the truth of my practice and experience.

For illustration, I have grouped together the following diseases, for a summary consideration, viz.:—constipation, dyspepsia, chronic diarrhœa, gastritis, enteritis, peritonitis, gastro-enteritis, hepatitis, splenitis, and bilious colic, and predicate the opinion, that the most frequent source of all those diseases, is misplacement, or subsidence of the abdominal viscera.

1. *Constipation*.—By this term, we are to understand a condition of the bowels that moves less fre-



quently than is natural in a healthy state. In some the discharge is once or twice in twenty-four hours, whilst in others, owing to habit or peculiarity of constitution, it varies from two to ten days. The causes of this derangement, as found in our medical records, are numerous, and in some instances correct; but every medical practitioner will find a misapprehension, either in the cause assigned, or in the effect of the remedial agent prescribed, from its failure to fulfil the indications. From such disappointments, and observing the effects upon the general economy, as well as from the history obtained from numerous patients laboring under one or another of the chronic diseases above enumerated, I have thrown together the remarks that follow.

In the second year of my professional career, I was called to attend a case of bilious colic, and after exhausting the remedies that were usually applied, the possibility of relief was suggested by reversing the erect position, or suspending for a few minutes the patient by the feet. A successful trial in a similar case had been witnessed, and as the usual remedies in this had failed, I directed the experiment to be made. The patient at the time was covered with a cold clammy sweat, and on the change of position, and immediately after the concussion given by the operators, a quantity of gas escaped—a free alvine discharge was made from the bowels, and in twenty minutes the patient was entirely relieved from the symptoms of colic.

At the time I was myself a sufferer, with occasional hemorrhage of the lungs and symptoms of hemorrhoidal tumors, with a sensation of fulness in the

lower part of the abdomen and pelvis. But after observing the relief obtained from inverting the body of the patient, and after a successful experiment in my own case, it occurred that a bandage would secure the relief so anxiously sought. A handkerchief was accordingly applied, from which much advantage was derived, although time was required to improve the habit of the secretions, and the other consequences of constipation.

From this, and the subsequent experiments made upon myself, I extended my observations to all the cases that came under my care, and soon discovered that the exterior walls of the abdomen, in the greater number of cases, had a depressed and pendulous appearance, with contraction in the upper half of the abdomen. This appearance, taken in connection with the symptoms in dyspepsia—with the relief obtained from the inversion of the body—and the application of suitable bandages, suspensory jackets, and supporters of various forms, led me to the conclusion that displacement of the bowels was the principal cause of the disease. But uncertainty as to the particular portion that seemed to be thus displaced, and my success urging to further inquiry, I examined every case within my reach, whether treated by myself or others, whose death had been caused either by chronic or acute disease; and now, after thirty years practice, I am satisfied that the most frequent source of constipation arises, first, from the displaced condition of the sigmoid flexure of the colon, and over distension of the intestines.

Secondly, from a depression of the small intestines and transverse colon, they being permitted to gravi-



tate lower than is consistent with their natural functions, thereby producing a mechanical obstruction in the caliber of the intestines and blood-vessels. And lastly, from a derangement in the circulation, for the fluids of the abdominal vessels gravitate as well as the solids—especially since venous blood is not propelled by what is termed the *vis à tergo* alone, but by the pressure made upon the veins by the action of the neighboring muscles, and atmospheric pressure, and by the elasticity and contractility of the capillaries and venous radicals. These forces are diminished whenever the muscles lose their power to retain the viscera in their proper places, and derangement in the secretions follows. Hence it is obvious that constipation would be a legitimate result.

Again, by the gravitated intestines we not only have mechanical obstructions to contend with in their caliber, but obstructions to the course of the blood, and congestions of various kinds, as any impediment in a large blood-vessel emanating from capillary vessels, must produce obstructions in those vessels, and of course congestion in the parts from which they proceed. For instance, if the capillaries of the liver, from chronic disease, or any other cause, cease to transmit the blood through that organ within the usual time, the *vena portarum* becomes distended and congestion necessarily takes place in the stomach, bowels and all the parts from which the veins empty themselves into the *vena portarum*.

The primary sources then, of all the diseases enumerated above and arranged in the order of their importance, are as follows :

- I. The descent of the sigmoid flexure, producing mechanical obstruction.
- II. The descent of the convoluted portions of the small intestines.
- III. The descent of the transverse colon, which produces obstruction at its angles.
- IV. Over distension of the intestines, whereby their capacity to adapt themselves to their contents, is lost.
- V. Functional derangement of the liver, with diminution of the secretions, which stimulate the intestines; and this is often a consequence of the former condition.

These diseases give rise to an impacted or distended colon—diminished contractility of the muscular coat—enfeebled susceptibility of the colon, and other portions of the bowels. From these results combined, habitual constipation is perpetuated in its ravages upon the entire economy, and if not the first, are the principal causes of the disease.

The disease, called dyspepsia, has unfortunately been more frequently maltreated, perhaps, than any one of the chronic diseases seated within the range of the digestive apparatus. There are various morbid states of the stomach, such as irritation, chronic gastritis, vascular engorgement, nervous affections, and gastric debility; all of which produce confusion, and lead to serious errors in practice. The treatment, as laid down by most of our old writers, is only applicable to a certain condition, without a reference to others of a different character. This unfortunately misleads the unobserving class of the profession, whose

treatment is confined to the name, rather than the pathology of the disease.

There are, however, many who doubt the existence of a distinct gastric disorder, whilst Broussais and his disciples refer all affections, usually called dyspepsia, to gastric irritation, or inflammation; but these opinions have not been generally adopted. Dyspepsia is frequently the consequence of depression of the natural action of the stomach, from a diminution of the nervous and muscular power, which constitutes the basis, and in the advanced stages of the disease, there may be superadded acute or sub-acute inflammation of the mucous membranes of the stomach and bowels. But these are mere consequences which may be removed by appropriate remedies, while the original disease is often left uncured. As dyspepsia most generally occurs under a complicated form, it requires accurate observation to distinguish true dyspepsia from constipation, chronic enteritis, chronic hepatitis, or splenitis, or is the result of these diseases. The morbid vascular and nervous action liable to arise from the gravitation of the bowels and fluids should not surprise any one, when the intimate connections of the nervous and vascular systems are observed, which are concerned both in location and functions.

Of thirty-three examinations which I made of persons who died of some one of the diseases above named, twenty-eight had a portion of the bowels in the pelvis, or had labored under chronic inflammation of the stomach and bowels. Twenty-one lived what is called a sedentary life. The remainder were common laborers. No one, however, could be traced to strumous habit. The description of three of these cases will illustrate the

whole, but in each of these three, there was a difference in the organs diseased, and a great variety in the shades of morbid action. Some had a thickening of the mucous membrane without ulcers; others, with softenings and stripes or spots. In these examinations, the redness or injected appearance of the mucous membrane in the dependent parts was owing, in my opinion, entirely to displacement, and the tendency of the fluids to gravitate, and not, as is generally believed, the result of articulo mortis, which is but a consequence, not a cause.

The capillaries, in ordinary health, are endowed with a peculiar degree of sensibility, which enables them to resist the entrance of such fluids, as are not designed to aid in the performance of their natural functions; for so long as these vessels retain their natural tone, the red blood cannot enter them. Hence those injected appearances are owing to debility, and the tendency of the fluids to gravitate. A post-mortem examination which I made in a case of chronic gastritis illustrates this position. The organic changes in the stomach were as follows: A portion of the mucous coat was thickened; whilst at the left extremity it had an elevated appearance in spots, and was evidently softer than it should be, as it and the spots were easily removed by the back of the scalpel. Between these spots, were stripes of thickened membrane, which appeared condensed, and difficult to be removed. In the right extremity were various forms of ulcers; but none more than a quarter of an inch in diameter. Some were found in the pyloric orifice, the surrounding membrane of these parts being apparently healthy. The liver was in a normal state, with the

exception of engorgement of the capillaries. The transverse colon of the arch was resting at the root of the meso-colon, the right and left angles evidently thickened and contracted, with marks of softening of its inner membrane. The small intestines were found in the true pelvic cavity, with several enlarged tortuous blood-vessels, which could be traced to a twist in the bowel, where the vessel was obstructed. All that portion of the intestines in the pelvis, was engorged with blood, resulting from obstructed blood-vessels. The mesenteric glands were evidently enlarged, and several of them softened in their centre. This case had been treated ten years for dyspepsia.

In the second case the patient was aged thirty-three—had been six years afflicted, during which time he made a sea voyage—had been treated in the commencement for bilious fever, from which he recovered, leaving constipation of an obstinate character. This disease continued ten months, after which it alternated with diarrhœa, in consequence of which change, the sea voyage had been prescribed. But instead of benefit, his sufferings were increased. His stomach became affected with the usual symptoms of indigestion, and he was treated by his physician for dyspepsia, originating from disease of the liver. After having continued the use of medicine for eighteen months, he resorted to the springs as a last alternative, at which place I became acquainted with him, and being an invalid myself, we spent our time together, and during the last six months of his life I prescribed for him. When I first examined him, the abdomen was distended in the hypogastric and inguinal regions, and the epigastric was very much con-



tracted, with a transverse contraction about two inches above the umbilicus. He had diarrhœa almost constantly, and was much emaciated. The colon, from its enlarged condition was easily traced throughout its entire course, though less at that time than at any time previous, except, perhaps, during the first eighteen months. His physician, who attended him during the attack of fever, told me his bowels had been tympanitic and very tender, which was relieved by a blister.

The appearance twenty-four hours after death was very singular. One half of the lower portion of small intestines I found in the pelvic cavity with three contracted portions of the ileum. The first contracted portion three feet from the ileo-cæcal valve, was four inches in length and would barely admit a quill to pass. Ten inches from the first, was the second contraction, which was two and a half inches in length, with similar appearances—the third contraction, eighteen inches distant from the second, was nine inches in length, and in half its extent, was similar to the first. This contracted part rested with its middle over the left margin of the promontory of the sacrum, to which slight attachments had formed. All the contractions appeared to have been the effect of acute inflammation in the early part of the disease, as there was no appearance of ulceration or softening in the contracted portions. The colon was enlarged throughout, and ulcers in various parts, with thickened and softened portions of the membrane. The sigmoid flexure in the pelvic cavity was enlarged and full of ulcers. The rectum was filled with hemorrhoidal tumors, so large in some places as almost to close the passage. Several of the



tumors had small ragged ulcers on them. The transverse colon, at the lower portion, rested across the second lumbar vertebra—the spleen was near the centre of the left kidney—the liver was so far sunk as to bring its lower margin in contact with the os ilium. It was enlarged, and had six or eight white tubercular formations of a hard fibrous texture. The stomach and duodenum had several softened stripes on the mucous membrane. The small intestines were very much congested, and the mesenteric glands enlarged; two of which, contained about one drachm of cheesy looking pus. The peritonæum in various parts had marks of inflammation, from slight fibrous adhesions; but none of recent appearance. The bladder was thickened and contracted, and on the inner surface, had a flocculent jelly-like mucous lining. The mucous membrane of the lungs was somewhat softened, with but a few tubercular formations in the left bronchia of very small size.

The appearance of those who died of gastro-enteritis were as follows:—The first case was a patient aged thirty-seven, of sedentary habits. The colon was considerably enlarged in the sigmoid portion, and covered with small ulcerated spots, with an abraded appearance of the mucous coat. In the descending portion, were slightly thickened appearances in the foldings of the inner membrane. The transverse portion at the centre, had fungus looking spots considerably elevated, all of which were easily removed with the back of the scalpel. In this group, were two or three ragged ulcers; each angular portion was thickened and condensed in all its coats. The ascending colon was much enlarged, with ulcers of different

shapes and sizes. The cæcum was also enlarged and ulcerated with similar ulcers in and near the ileo-cæcal valve. A portion of the small bowels was found in the pelvis highly congested, with a thickened appearance of every coat. The mucous coat had an abraded appearance, and in some parts, elevated and softened spots which continued throughout the intestines, contained within the pelvis. At or near the division of the ileum and jejunum, was a contracted portion, which was about three inches in length, the caliber being only half its original size. The mucous membrane appeared healthy in the upper portion until it terminated in the duodenum, which was covered with dark red patches, and by a few ulcers at the lower angle. The stomach was flaccid and attenuated, with its mucous coat irregular, and of a mottled ash color; but not softened. The liver was of a bronze color, with the exception of the parts to which the blood had gravitated. The lungs, on the mucous coat, were marked with chronic softenings, having many sacs or distended air cells with slight infiltration. The heart was apparently healthy. This case had been under several physicians, two of whom had treated it as a disease of the liver,—a third informed me it was a disease of the heart.

The two following cases have been selected in consequence of their morbid lesions being peculiar and extensive. They had been treated by other physicians as dyspepsia, diseases of the heart and liver. The examination was made eighteen hours after death in one, and twenty-four in the other. The first was aged thirty-nine—habits active and temperate. The origin of the disease was attributed to an attack of intermittent

fever, which entailed constipation. From the attack until the time of his death, was five years. On opening the abdomen, the lower portion of the small intestines and sigmoid flexure of the colon, were found in the true pelvic cavity. The transverse colon and omental processes, were depressed to the lower boundary of the abdomen. The mucous membrane of the colon, one third of the small intestines, a part of the stomach, and spots in the duodenum, had a pale ash color, and an attenuated appearance, except the mucous follicles, which were elevated, and as large again as they should be. The sub-mucous and mesenteric blood-vessels remarkably large. The symptoms, with the secretions, would have induced the belief that the colon was covered with ulcers, but none were found within the alimentary canal. The brain, lungs, and heart, had a normal appearance. The liver was enlarged, lax and soft, having a leaden or bronze color. Two months previous to death I was in attendance with the family physician, when I found the emaciation extreme. He exhibited all the marks of tuberculated consumption, except the cough. I examined the secretions from the bowels every other day, in which I detected muco-purulent matter. From this fact and from the appearance of the mucous membrane, blood vessels and follicles, I inferred that muco-purulent matter had been secreted, either by the membrane or follicles, or both.

The second case, aged twenty-seven—habits irregular and at times intemperate. Previous to death I was called in consultation every other day during one month. The symptoms like those of consumption, with slight cough and distressing dyspnœa. Dis-

charges from the bowels and lungs muco-purulent. One year previous to death he had constipated bowels for three or four days at a time, alternating with mucous diarrhœa for ten or twelve days, with irregular appetite. Examined twenty-four hours after death: the small intestines, sigmoid flexure, transverse colon and omental processes, were nearly in the same condition as those of the preceding case. The mucous membrane of the lower third of the ileum, was softened in spots, and covered with small ulcers. The ascending colon interspersed with thickened stripes and small ulcers. The mucous coat of the transverse portion was covered with ash colored spots, and half a dozen ulcers in the centre. The entire coat was thickened at the right angular process. The stomach in the left extremity had ash colored spots, and small ulcers were observed in the lower angle of the duodenum, with softening and stripes. The sigmoid flexure was ulcerated throughout. Liver enlarged, and of a dark firm texture. Heart natural. Lungs infiltrated partially. Mucous coat had an abraded appearance, with some of the air cells enlarged, and in the summit of the left lobe, small millet-like tubercular formations. This case had been treated for dyspepsia by several physicians.

Of the two cases of bilious colic I examined, the first case, aged twenty-three, in which the bowels were constipated three days previous to the attack. The day preceding, danced at a barbecue on the fourth of July. First symptom was nausea, with bilious vomiting; hands and feet cold. From the commencement, as stated by the physician in attendance, and by the family, the nervous system was much disturbed with

spasmodic contraction of the muscles of the abdomen and extremities, and with despondency, &c., which rapidly increased until the fatal termination, about eighteen hours after the vomiting commenced. Twelve hours after death, the organs of the abdomen were examined, and the sigmoid flexure, and one-third of the small intestines were in the lower pelvic cavity. The sigmoid flexure and descending colon had been emptied by the injections, but were distended with gas. The transverse and ascending colon were impacted, and distended, and marks of inflammation were on the outer coat of the bowel. The small intestines in the pelvis were congested, and the peritonæum, stomach and duodenum, showed strong marks of inflammation throughout. There was an intussusception in the lower third of the ileum, where it was twisted one inch in length. Through this no medicine had passed. The speedy termination of life was from inflammation, and doubtless the exercise produced the displacement, and inflammation was accelerated by the free use of ardent spirits.

The second case, aged forty-one years—habits regular. Previous to the attack was engaged in raising heavy timber. The attack commenced with flatulent colic. The examination was made fifteen hours after death, and the small intestines found in the pelvis, with the sigmoid flexure and transverse colon distended and the latter sunk down at its centre. The sigmoid flexure and the descending portion were completely emptied by the injections, while the ascending colon was distended and impacted. The small intestines in the pelvic cavity were congested and twisted in the middle, and marked with acute inflammation. In this case



the result was obviously owing to obstruction in the veins which became greatly distended, while the capillaries from which they proceed, became congested, having a dark grumous aspect. The small intestines were much distended with gas. The ascending colon enlarged and distended. The transverse colon, duodenum and stomach inflamed; at the right angle of the transverse colon, from the depression of its centre, the caliber was reduced to at least one half its natural size; at this point there were marks of inflammation of the peritonæum, and the mucous coat was similarly marked. The history of the case I was unable to obtain. I was told he had been frequently attacked by colic, which was generally relieved by an emetic or a large dose of oil and turpentine.

From these, and other cases of a similar character, which have been examined or come under my notice, I am warranted in the conclusion, that displacement, or gravitation of the abdominal viscera, is a prolific source of the diseases enumerated at the head of this essay; and although it is the cause of many of the ills of life, it is itself the effect or consequence of the debility of the abdominal muscles; which also is an effect of various causes, as sedentary habits—too long standing—over fatigue—cold—over distension and gravitation of the solids and fluids.

The effects of such displacement are numerous and various, since the muscular and nervous systems are involved. They are briefly as follows:

- I. Obstruction of the bowels and blood-vessels.
- II. Debility of the muscular and mucous coats of the stomach and bowels, and diminution of vascular contractility.



- III. Deranged action of the liver, spleen, pancreas, &c.
- IV. Imperfect digestion.
- V. Premature decomposition of aliment, generating gas, which distends the digestive tube, and especially the colon.
- VI. Gastric irritation from acidity, in which the liver and brain participate sympathetically.
- VII. Imperfect assimilation, by which the constituents of the blood are modified to a greater or less extent, which alone is sufficient to impair the functions of the entire animal economy.

These conditions, then, the results of displacement, may be the direct or indirect source of almost all the diseases which affect mankind, not excepting epidemics;—to which they render the system more susceptible by reducing the standard of health below par.

The causes, therefore, being known, the treatment is simple, as the indications are easily made out; and one of the most important is to remove the antecedent cause, and restore the displaced organs to their primitive position, and give support to the abdominal muscles, whose normal condition is requisite to maintain their restoration.

Mechanical agency, then, being the first indication, medicinal agents may be given in accordance, as the different stages of the disease may indicate.

But as my views may be singular as to what are the real indications, and the particular medicinal agents best adapted to fulfil them, I will give a desultory sketch of my mode of treatment, to cover the entire group. In ordinary constipation, I invert the body

or elevate the hips occasionally, apply a supporter, direct vegetable diet, with bran bread, stewed fruit, &c. and regular and punctual attempts at stool, at a certain hour each day, with gentle exercise, aperients and alteratives.

These are some of the means I use, in addition to those usually employed in the treatment of the diseases located in the cavity of the abdomen; and from these general desultory hints, my theory, with what follows in the way of treatment, will be understood. The success which has crowned my efforts, has far exceeded my expectations, and convinced me of the truth of the theory, and utility of the treatment based upon it. Hence my desire to give to the profession what has been of signal service to my patients for twenty-one years; though in these remarks, while I may incur the imputation of egotism, I have been actuated by the sincerest motives.

*Dyspepsia*, which is the result of functional derangement and gastric debility, arising from the nervous and capillary systems, is also to be relieved by mild aperients, diet, and the application of suitable supporters or suspensory jackets. But before the remedies are applied, the patient should invert his body, for the purpose of restoring the organs to the place where nature intended they should perform their functions. If confined to the recumbent position, the object may be accomplished, by elevating the hips, and flexing the thighs upon the body for fifteen minutes every twenty-four hours, or, by inverting the body one minute. Then if the action of the bowels is not regularly maintained by the supporters, diet and exercise, a half grain of ipecacuanha and thirty grains of soda should be

given two or three times a day ; or, if there is much irritation, one grain hyoscyamus, with half grain ipecacuanha may be given at bed time. This pill, with sponging the body night and morning with equal parts of whiskey and water, I have found best for soothing the irritability of the system. The saturated tincture of Indian hemp is also a valuable medicine, in this form of the disease, to regulate the bowels, and restore the functions of the skin and kidneys. From fifteen to sixty drops, three times a day, may be given. For functional derangement of the liver, the extract conium and a decoction of taraxacum, in addition to the blue pill (which should not be pushed to affect the general system,) are the most efficient agents.

Indigestion, as described by most of our medical writers, includes chronic gastritis, enteritis and hepatitis. The indications of the advanced stages are intended to meet the four diseases. It seldom continues long without being combined with functional derangement of the liver, the skin and alimentary canal. Where the skin and eyes, with the appearance of the stools, exhibit a failure in the functions of the liver, the use of blue mass, extract conium and decoction of dandelion, will generally give prompt relief—four grains blue mass to one of conium, every other night, with a strong decoction of dandelion, may be given in three equal parts during the day, until the functions of the liver are restored. Three ounces of the root in a quart of water boiled down to a half pint, will be of sufficient strength for the decoction. If the bowels are tardy under the influence of the pill, a half grain of ipecacuanha may be added to each third of the decoction, until the bowels are moved once or twice

each day. Mercury should not be used to affect the general system. Alkalies are a good palliative to remove the acidity of the stomach, with Dover's powder at night, if irritability indicate its use. Acute or sub-acute inflammation of the mucous membranes of the stomach and bowels are not infrequent, with tenderness on pressing upon the part, which sometimes requires leeching or blistering. In such cases, I have found the morbid irritability subdued by doses of ipecacuanha, combined with carbonate of soda, during the day, and Dover's powder at bed time. In chronic disease of the intestinal canal or liver, free purging should be avoided. Calomel in full purgative doses is required in the treatment of chronic diseases of the liver, but rarely. Where the gastric irritation or chronic lesions of the mucous membranes, or liver, establish febrile or inflammatory symptoms, the diet must be of mild character, without animal food or stimulating drinks. In chronic hepatitis there are a great variety of morbid appearances described in medical writings; but we find the treatment to resolve itself into one general code, which, in the inflammatory stages, is leeching, cupping, antimonials, moderate mercurial courses, aperients, blisters, tartar emetic, opium and diuretics, which I have found serviceable, and would, in addition, recommend the saturated tincture of apocynum cannabinum, in doses to keep the bowels in a soluble condition—given in a solution of dandelion. Where the stomach and bowels are feeble from the irritability of the system, the tincture should be given in a cold infusion of the prunus Virginiana. The bark should be procured fresh every day. Two ounces bruised to the half pint of water, and taken during the day. These, with the

proper attention to supporting the viscera of the abdomen, will be found adequate. The healthy functions of the skin should also be attended to, as well as the internal organs, owing to the intimacy of the capillary vessels and nerves, which are dependent upon such healthy action, and seem to receive the first shock from the numerous morbid agents. Experience has taught the profession that our hope for a favorable termination of the disease, is dependent on the healthy movements of these two systems. But as the treatment of chronic diarrhœa, in the remaining indications, will apply to gastro-enteritis, I will finish under that head.

It is, however, understood, that the first effect of inflammation on an organ, is to suspend the secretion of the tissue, or produce a diminution of that which is unhealthy; but this rule does not hold good in the mucous membranes of the stomach and bowels, as we find the worst forms of the disease produced by inflammation. Diarrhœa may be brought on by fright, unwholesome or indigestible food, diseased biliary secretions, or any irritating cause acting upon the mucous surfaces, through the capillary vessels and nerves. For instance, cold water suddenly thrown upon the surface will frequently act as an excitant to the internal mucous membrane.

Thus, from this pathological description, it will be seen that chronic diarrhœa is derived, in some, from irritation, constipation, gravitated viscera, irritated condition of the mucous surfaces, and inflammation, which may terminate in chronic gastro-enteritis. Hence chronic diarrhœa is a mere symptom of primary internal disease. X

The indications, in the first named list, must be



considerably modified, if it be produced from unwholesome food. A gentle laxative, with the use of some one of the alkalies, will be sufficient to remove it. Or if from cold, warm bath with flannel worn next the skin—if from acrid secretion of bile, a small dose of calomel and opium—if from constipation and the gravitated viscera, or fluids, reverse the body, or elevate the hips, so as to replace the bowels, and apply a supporter to prevent the gravitation, and correct the secretions, with a small dose of calomel, ipecacuanha and opium. If the disease is derived from irritating substances contained in the alimentary canal, a dose or two of oil, or jalap and cream of tartar, will generally remove the cause. But if the diarrhœa should be dependent upon acute or chronic inflammation, in like manner, the cause must be removed. If acute, blood taken from the arm will be necessary; but if the patient should be feeble or reduced, leeches should be applied and followed by warm fomentations, repeated until the active pain is reduced; after which a blister and alkalies, to correct the secretions, calomel, ipecacuanha, opium and Dover's powder. But where the remedies, with gum water, absorbents and astringents, fail, I have been able to control the disease by a flannel roller and pledgets. By the roller, and wedge-shaped pad, with direction to the patient to lie on the right side, or back, with the hips somewhat elevated, and the thighs flexed on the body, the peristaltic and vermicular movements will be checked, and relief will follow. In acute or chronic inflammation, I have found the roller an efficient agent, as it checks the movement of the inflamed viscera, and produces the quietude so desirable in the treatment.



Bandages are as strongly indicated in inflammation of the bowels as they are in a fractured limb, and in my practice I have derived signal satisfaction from their use ; but it is understood they are not to interfere with such other remedial agents as may be deemed necessary. It has been a rule with me to move the bowels once in twenty-four to seventy-two hours, unless urged to more active treatment by the pain. If the secretions be acrid, and continue to irritate, the bandage should be removed and mucilaginous injections, or a dose of oil administered. After which the bandage may be replaced, and small doses of Dover's powder given and repeated every six or eight hours. By pursuing this course, with the requisite attention to the skin, and the constitutional alteratives, the acute, or sub-acute inflammation will be subdued and the diarrhœa checked.

In addition to the remedial agents thus recommended, I have found, after correcting the secretions, that by applying a Burgundy pitch plaster to cover the entire abdomen, with the bandage over it, the disease with all its irritating symptoms would speedily yield. This plaster, with a supporter, on the true dyspeptic, will relieve without the application of medicine. In these diseases, it is of much importance in the treatment, where the supporter is dispensed with, on account of the demand for the roller to direct the patient not to incline forward on the close stool, as it changes the axis of the body and permits the bowels to pass into the pelvis, which may re-establish irritation and inflammation. Hence the sedentary victim to misplaced bowels, and hence also the fashionable names and

the more fashionable treatment for this old-fashioned disease.

Chronic peritonitis is a disease so insidious in its attacks that it rarely becomes the object of treatment until it is incurable. It is, in my opinion, to be traced more frequently to constipation, and the consequences of misplacement, than all other causes, except the sequel of inflammation, after confinement. In my practice I have had but few cases of recent occurrence, and from the successful termination, I found them as curable as any of the chronic diseases, except that more time was required where effusions had taken place. In the incipient stage, it required depletion, either general or local, counter irritants, alteratives, diuretics, diaphoretics, with aperients and purgatives of calomel, compounded with ipecac, opium, or Dover's powder, and carried off by oil and spirits of turpentine. After the inflammatory action has been reduced to the blistering point, a large blister should be drawn, and on the second day dressed with mercurial ointment and the Burgundy pitch plaster, with a suspensory jacket over it. The effect of this mercurial plaster on the constitution must be observed, and removed if it excite the salivary glands, or if the irritation of the blister becomes too great, warm fomentations, or emollient poultices should afterwards be used to abate the irritation or inflammation brought on by the plaster. But when the irritability of the constitution forbids a blister, the tartar emetic mixed with the mercurial ointment, will answer the purpose, with the pitch plaster. Where effusion has taken place, which exists to a greater or less extent in every case, the

bandage should be used occasionally with or without the suspensory jacket. The object is to abate the effusion by accelerating the action of the absorbents. Mild laxatives of a diuretic character will be required during the progress of the disease. For this purpose the saturated tincture of the apocynum cannabinum, given in doses from half to a drachm, twice or thrice a day, mixed in the decoction of dandelion, will be found efficient. The extract conii, and hyoseyamus, may be dissolved and given in connection with the tincture. The former, where the absorbents fail to stimulate the functions, by the mercurial ointment and bandage, to be added where the irritability of the system indicates its use. I have found the conium a good adjunct with the mercurials. During the treatment, the integrity of the skin should be maintained, and occasionally a free use of jalap and cream of tartar, will be indicated and found of service.

*Splenitis* is alike the offspring of constipation, gravitated viscera, and the sequel of intermittent and remittent fevers. The altered condition of the organ is various, but the most common, is a softening of the structure, and enlargement from intermittent and remittent fevers. Suppuration and ossification have been met with. The treatment, however, is pretty much the same as in the preceding diseases, viz.: cupping, leeching, mercurials, tartar emetic ointment, laxatives, supporters, &c. In enlargements from fever, I have found no remedy more useful than the compound tincture of the apocynum cannabinum, given in doses three times a day sufficient to augment the action of the bowels above the healthy condition. Where febrile

symptoms supervene, antimony in small doses will soon control the heart and arteries. The extract conii, given in combination, with blue mass is frequently of service.

## STRUMOUS HABIT.

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THE strumous habit, or a predisposition to scrofula, is a constitutional tendency which frequently appears in children as a hereditary diathesis. But this is not its only source. The causes to which the various writers refer, are a distempered state of the atmosphere, deficient and unwholesome food, with the sequel of the various exanthemata. From observation, however, I believe that the most frequent cause of strumous disease, except that of inheritance, is the gravitation of the viscera of the abdomen and of the fluids to the most pendant parts of the body, and eruptive diseases which have their origin in the deranged condition of the digestive organs. So far as I have been able to judge from the external appearances of scrofulous families, in relation to complexion, and colour of hair, I believe all complexions are alike subject to scrofula, and that it is owing most frequently to the circumstances which surround the individual that call it into action.

The best external sign of scrofula that I have been enabled to observe, is the uniformly lax and feeble condition of the muscular system. For although the cellu-

lar membrane may give the appearance of health, the digestive organs, deranged by difficult dentition, summer complaint, or any other cause, show this to be only apparent, not real. On examination, we find an irregular appetite, at times voracious, at others deficient. In such constitutions it will invariably be found that the lower half of the abdomen is tumid. The weakened condition of the muscular system requires but little derangement, or exertion, to prostrate the muscular parts of the abdomen, and consequently derange or overpower the mechanical functions of those muscles. Hence the frequency in such cases, of the bowels gravitating to the pelvic cavity which gives rise to further derangement of the digestive organs. It also establishes irritation in the mesentery, and deranges the capillary vessels, glands and nerves, by which, with the gastric derangement, an increased vascular action is established which soon augments the difficulty in the already debilitated capillary vessels, which are below the point of resisting the *vis à tergo* of the heart, and confirms the congestion upon the bowels. This fact has been fully demonstrated by the cases of a number of children whose bodies I have examined after death, and by a number of living patients who have been relieved by the appropriate mechanical support. In each the bowels were displaced, and upon the small intestines, tubercular formations with congestion were found. It had been my belief that the diseases arising from scrofulous habit, were brought into action more frequently from derangement of the digestive organs, than from any other cause, and in order to collect the facts upon the subject, I commenced to investigate all the families within my reach, laboring under any



form of the disease, and by examining the brothers and sisters of the afflicted, I satisfied myself of the soft texture of the muscular system, and the pendulous and tumid condition of the lower part of the belly. I also learned that both parents, and children, were constantly suffering from reverses of appetite, or irregularity of the bowels, and that the causes were manifestly owing to the original weakness of the muscular fibres, which were not sufficient to enable them to perform their functions.

But in describing the characteristic marks indicating scrofulous diathesis, the writers on the subject have given only the condition of the patient after the disease has given evidence of its local existence, instead of making us acquainted with the temperament and habit of the body antecedent to the local manifestation. All parts of the system are liable to scrofulous affections. In some it may appear first with a tumid belly, thickened and chapped upper lip, extending to the *alæ nasi*, an enlargement of the lymphatic glands, particularly those of the neck, and not unfrequently the eyes were affected. In others, tubercular formations appear in the lungs, and in others of the same family it makes its appearance in the joints. In my practice this fact has presented many illustrations, and I have frequently met with cases where it was almost impossible to determine whether it was cutaneous, and dependent upon the derangement of the digestive organs, or the manifestations of scrofulous diathesis. Cutaneous diseases not belonging to the order of exanthemata, and deriving their origin from a derangement of the organs of the abdomen, are more liable to be mistaken for scrofula

than any of the other diseases. Their history, as found in most of the medical books, is worthy of the closest scrutiny. By it the reader will discover the importance of distinguishing the scrofulous eruptive diseases from those which have their origin in other sources; and also the intimacy of the functions of the mucous membrane and the skin, which appears to be as closely connected as the capillary vessels, and nerves. But when we view these cutaneous diseases in connection with the functional derangement of the internal viscera, in some the stomach, others, the liver and lungs, and others again in the brain, indelibly marked with the ravages of functional derangement, or organic lesion, it will be very clear that cutaneous diseases are well calculated to engraft upon many constitutions the scrofulous habit.

Tuberculated consumption, from its history, and the analysis of the tuberculous matter, is a disease dependent upon strumous diathesis, in the greater number of cases. But this is a controverted point with the profession, and as I am inclined to believe, that whenever a careful analysis of the tuberculous matter, as found deposited in the mesenteric and lymphatic glands, in and upon the brain and lungs, is resorted to, with the necessary allowance for the tissue upon which the matter was deposited, which physiologists know, will influence the deposit in proportion to the constituents of the tissue upon which the deposit was made, the matter will be found to be the same throughout the system, I infer the word *struma* is properly applied to this class of disease. Its progress and duration, we find, are various. In some it is developed in infancy, whilst in others the consti-

tutional tendency remains dormant until puberty or a later period, before it is called into action. Some individuals who are affected in the lymphatic glands, continue so till the end of life without experiencing any particular suffering; but in strumous constitutions, one or more of the vital organs, in the early part of life, becomes the local seat of the disease. The first manifestations, however, are more frequent at the time of dentition, and it is then that parents should understand the condition of their child, and receive the instructions for its cure. Phthisis is looked upon as a complicated disease, owing to the number of organs or tissues liable to the affection during its progress, and the uncertainty of the tissue or organ that was first the seat of the morbid action. These complications, when examined, will be found nothing more nor less, than the yielding of the weaker parts of the system, and so on in succession, until the analogous tissues, dependent upon the strumous habit, are put in motion. Tubercular or scrofulous phthisis, is an appropriate name for at least nine out of ten cases; and as it has already been stated, that a lax feeble muscular fibre is one of the characteristics of the disease, I quote from Professor Geo. B. Wood, to show that I am not alone in this position. In vol. ii. page 104 of his valuable work on the Practice of Medicine, he says, "The predisposing cause decidedly the most influential of those so far as known, is inheritance. Phthisis is pre-eminently a hereditary disease." On page 105, "Whatever has a tendency to produce permanent or long continued debility, will generate in some individuals the consumptive diathesis;" and page 106, "The disease is much more common in women than

in men. It occurs in them, too, at an earlier age, and in general is more rapid in its progress." There are various causes for this difference. In the first place, the original organization of the female is more delicate, and consequently exposes her more to diseases of relaxation and debility.

Another of the causes of this fatal disease is ascribed by many writers to sedentary habits; but as the consequences are of a two-fold character, first in debilitating the muscular system, and secondly in establishing constipation from debility, it will be found that either or both is but the principle upon which the latent diathesis is put into action. After the system becomes debilitated a few degrees below the strumous standard, the bowels gravitate every day, and only recover their natural position by the recumbent posture during the night; but eventually the attachments become elongated, with an increase of debility in the walls of the abdomen, which of course allows but a partial restoration, and upon resuming the erect position, the bowels again fall into the cavity of the pelvis, and eventually prostrate the entire system. If we examine the symptoms and feelings of an individual, laboring under hernia, we find that his strength is subdued as soon as the bowels descend from their natural position. And is it not reasonable to suppose, that the gravitation of the bowels into the pelvic cavity, would produce the same effect? But if there are any who may regard these remarks as establishing an absurd hypothesis, let them examine their own abdomens, night and morning, when they will be enabled to establish the truth or the fallacy of this position.

The human system is continually surrounded by

causes which tend to interrupt the healthy functions of life. And if it were not that the animal organization is endowed with a resisting power against the influence of those morbid agents, man would not be enabled to live amidst the multiplicity of causes that conspire unceasingly to his destruction. Hence, it is of the utmost consequence that this vital force should be sustained, and as conservators of the general health, it is the business of physicians to determine whether the means of protection shall be chemical or mechanical, or both. If there is reason to doubt this position, upon what does it really depend? If not, what have we been taught by the physiological laws of life, which I understand to be the harmonious action of the vital and mechanical functions, as arranged by the Creator of the universe to the fulfilment of a special end? In my opinion, whatever is calculated to enfeeble the chylopoietic organs, or weaken the mechanical functions, diminishes the vital resisting force, and consequently when we find the citadel of the economy encroached upon, and the bastions of the fortress subdued, the enemy to vitality will make an easy prey of the balance. Hence, is it reasonable that the common elements which contribute to our existence should be capable of producing so many maladies, if the system has not been weakened by some remote cause? To me the facts are plain, and as I believe with the majority of the medical world, that strumous diathesis is an appropriate term for all classes of scrofulous and tubercular diseases, I shall adopt this view in the subsequent part of the treatise.

In all children of strumous diathesis the muscular system is of a soft lax texture; so much so, as to be



easily detected when contrasted with other children free from hereditary taint.

The one with scrofulous diathesis, in a large majority of cases, will be found to have an unusual development in the cellular membrane, giving a round, plump appearance to the entire system; but when examined by the touch, these appearances will be found to depend upon the cellular and adipose membranes. The apparent plumpness and beauty may continue uninterrupted, if the bowels should not from fatigue be permitted to gravitate and derange the digestive organs; or if difficult dentition with other causes, should not derange the functions. The scrofulous or strumous diathesis, I understand to be an excess of white over the red fluid, which I believe is the received opinion of the profession. This being admitted, what would the physiologist think of the result of such disproportions between the organic elements from which the entire organism is composed, when it is known that each tissue, or organ, is constructed from one or more of the organic elements? Would it not be reasonable, understanding as he does the laws of life and the true analysis of the tissues and organs furnished with the best supplies in accordance with the parts, which organ would be the best developed? And is this not the case in strumous diathesis? In the examination, I have found all the white and translucent tissues, with the glandular system, highly developed, and all of them, with more than usual activity in their several functions; but is this the case with the muscular system? My practice during thirty years has not presented a single instance by which the reverse could be proven.



*Fatality.*—The medical statistics present the fact that the number of deaths from scrofulous habit is greater before nine years of age. After which the deaths are comparatively few, until after puberty; but in this interval, the person endowed with the taint, is liable to cellular abscesses, lymphatic enlargements, diseases of the skin, eyes, and also when attacked with febrile disease, is in great danger of losing his life. From the age of puberty, say sixteen to twenty-eight in the female, and from twenty-one to thirty-three in the male, is the next fatal period.

*Post mortem Appearances.*—From the examinations in childhood, morbid lesions are found upon the mucous membranes, with mesenteric enlargements; and in four out of twenty cases examined, at the summit of the lungs, millet-like tubercular formations were found; and six of the whole number, had some one of the mesenteric glands softened; nine had tubercular formations on the small intestines, and had their bowels more or less agglutinated; but in all the mucous follicles to a greater or less extent, ulcerated,—the colon being the principal seat of the ulcers; the small intestines and the mucous membrane of the lungs had a phlogosed appearance; within the stomach, seven had rose-colored spots, and of the twenty examined, sixteen had the small intestines and sigmoid flexure in the lower pelvic cavity.

Tubercular deposition in adults is found in every cavity, and it appears that no part of the system is free from the deposit; but the fatal seat is in and upon the lungs and viscera of the abdomen. In the chest and abdomen of some of the cases examined,

the organs were completely studded with tubercular deposition. The theories advanced by the different pathologists, on the origin of tubercular deposits, are various; some contending that it is the result of inflammatory action, while others insist that it arises from infiltration; but as theories and controversies are foreign to my purpose, I shall confine my essays to clinical observation.

In relation to tubercular formation in adults, it appears to me that the deposit is an effort of nature, as in childhood, to balance the organic elements of the blood. From the earliest period in life to adult age, we see that the over amount of white fluids is expended upon the cellular membrane, or analogous tissue, and from the abundance of nutritious matter, the appearance is kept up, and the organic elements of the blood are regulated in conformity with the laws of life; but at the same time, it gives through the nutritive vessels, a disproportion to the growth and strength of the tissues composing the organism. By this nutritive expenditure, one-third or more of those laboring under strumous diathesis are kept in health to a later period in life, but in the remainder, the loss of balance between the constituent elements deranges the digestive organs, and in infancy, carries them off, notwithstanding the liberal efforts of nature to retain them.

At adult age, agreeably to the natural laws, the growth of the system is perfected, and no further demand is made upon the nutritious system than is requisite for the natural waste of the economy; but it leaves nature with a large amount of white fluids in

the circulatory system. This disproportion between the constituents is a source of derangement throughout the stages of life, as is manifested in infancy by the morbid assimilatory and nutritious processes. The infant, by inheritance, may be justly said to be born in a pathologic state, which is manifest in the growth of one set of organs, and the want of proportion in the other, which is attributed to the peculiar virus or condition of the organism. All the writers on scrofula have observed, and remarked upon the unusual sagacity and early development of the intellectual faculties attendant upon this peculiar diathesis, and the organ to which the function is assigned, of generating our ideas, in its constituent, is formed from the white fluid. The same unnatural strength is observable in the digestive organs until thwarted by other causes, and it appears all those exalted movements have their origin in this virus, acting as a stimulant favorable to the assimilated functions destined to preside over the fluids, and all the functions susceptible to the specific influence of this stimulus. All of which have their origin in a morbid cause, and as a matter of course, the disproportions of the constituents of the organic elements, growth of parts, appetite, &c. &c. are morbid results, and should be corrected if we expect to change or check this diathesis. Those exalted developments of one set of organs and deficiency in others, from a specific stimulus, are in exact accordance with the laws of the economy, and the *modus operandi* of all our medicinal agents. Yet strange as it may appear, it is nevertheless true, that the efforts of nature to husband life in the establishment of the increased nutritive process, is in accordance with the physiolo-

gical laws of life, which is manifest from the nutritive process being thrown upon the white and compound tissues, and by which the organic elements are kept in harmonious proportions. So, in the wisdom of the arrangement, we find nature is capable of acting physiologically, and yet on the one hand promoting the laws of life, and on the other, the laws of death. But in looking at the wisdom of this apparently contradictory movement, we find the functions of life pleasantly and safely conducted, in at least one third of the afflicted, to the age of puberty. Again, by the movements of this vital arrangement, after passing this climacteric age, and that too, when deprived of the tissues used in perfecting the growth, we find nature on the alert to extend the vital spark, by depositing a portion of the white fluids in different parts of the body, to equalize the organic elements, and sustain life until the deposit becomes solidified and enlarged. But alas, the wisdom and ability of nature is not by any one of those vital and physiological movements, able to free herself of the latent virus, and hence the system is still in a pathological state, with the tubercular deposits acting as irritants on new parts, establishing vascular action, which softens the tubercular bodies, establishes a rapid waste of the economy, and eventually closes the scene with poor mortality. This is not fancy, but what every observing practitioner knows to be true, if he relies upon the physiology of man, and the *modus operandi* of the remedial agents. And where is the remedial agent that in proportion to its medicinal, stimulating or depressing influence, is not found to be capable of acting physiologically on one set of organs, or vessels, whilst another set is brought into a patho-

logical condition, or that state, which suspends the natural secretory or nutritive functions? Such a state may be produced by the stimulant, having invited more of the vital fluid to one set of organs than was compatible with its functions, whilst a second set may have too small a supply to enable the organs to perform their offices; or, they may be suspended in their functions, by nervous irritations, depressions and capillary congestions, or mechanical obstructions in the course of the circulation. All changes from the normal standard are liable to produce an increase of the functions in a part of the organs, and a diminution in another; and all of those altered actions are either in favor of life or against it, owing to the physiological law of life, or the pathological law in favor of death. Hence we recognize the wisdom of nature in checking the tendency, while she is unable to free herself from the morbid agent; or prevent a continuance of the pathological condition. On similar principles our remedial agents act, and for the want of a correct knowledge or attention to the physiological or pathological effect of medicine, much injury is done within the limits of the profession, and thousands of our species shorten their days by the use of those quack nostrums termed expectorants. They only irritate the lungs and invite a greater afflux of blood, which increases the secretory efforts of the organ, and not unfrequently establishes ulceration in simple catarrh, and prepares the lungs for the disease it professes to cure. For twenty years I have ceased to give expectorants in tubercular disease, knowing that all such remedies invite the afflux of blood to the part, from which the expectorated matter is formed by the secre-



tory process. Expectorants are admissible only in pneumonia and inflammatory diseases, but not in tubercular affections.

Tubercular patients are subject to a complication of catarrhal pleuritic attacks, or bilious pleurisy, and require antimonials, ipecacuanha, opium, and mercurials sparingly, with leeching, &c. to moderate the febrile and inflammatory symptoms; but no stimulating expectorants, as curative agents. Febrile or inflammatory action is dependent upon organic disease, excited by a specific virus, which in the early part of life had perpetuated in the circulating fluids, a disproportion between them and the organic elements of the blood; the excess being in the white part during the growth of the individual and deposition of the tubercular formation. After the suppurative process becomes established, it is obvious from the rapid emaciation, the tissues being liquefied, that the red fluids predominate; as we find that the cellular and adipose membranes have been thrown off by the waste of the system; and is this in accordance with the physiological laws of life, or the pathology of the disease? It has been shown that nature at all points exerts her vital energies to maintain a balance in the organic elements, and preserve the harmony of the entire economy, which is the bulwark of existence. Hence I infer, that the red blood predominates in the ulcerative stage, from the tissues which are liquefied and taken into the circulating mass to maintain the organic elements of the blood. In some instances we find a spontaneous cure after the ulcerative process has been fully established, and we know such results could not occur until the diathesis was removed.



We have also similar instances of cure in white swelling by changes of the diathesis, after many years' discharge in some, and in others a few months. In like manner the lymphatic glands suppurate favorable to the cure of some, and unfavorable to others. This suppurative action, or ulcerative process, appears to be the last resort, or effort of nature, which cannot, under the circumstances, be classed as a voluntary effort from the history of the disease as heretofore given. But it is worthy of notice in a practical point of view, as we find that a change is brought about in the constituent organic elements of the fluids, which purges the system of the peculiar diathesis, and leaves the individual clear of disease.

The suppurative process, as has been shown, is called into action by additional irritation, derived from tubercular bodies, acting as irritants, and obstructing the course of the blood-vessels, establishing vascular action, which softens or converts those organic bodies into pus; notwithstanding in the process, we have occasionally a spontaneous cure, which very clearly indicates the course to be pursued after an extensive tubercular deposit has taken place.

Having thus given such an outline of my views of strumous habit as is consistent with the limits of this essay, and having given the reader the opportunity of determining whether they are well or ill founded, I here recapitulate the several heads that a condensed view of the position may be had.

*First.* Strumous habit is a predisposition, or hereditary taint derived from parents.

*Secondly.* It is not the only source from which the

disease is derived. It may be generated by other causes, such as eruptive disease, &c.

*Thirdly.* All complexions and colors of hair are alike subject to the disease.

*Fourthly.* The index to strumous habit will be found in the condition of the muscular system, which is always of a soft, lax character, although the child may have an universal plump and rudy appearance, from an inordinate development of the cellular and adipose tissues.

*Fifthly.* Children that labor under strumous habit have a variable appetite with irregular bowels; and their digestive apparatus is more frequently deranged by dentition.

*Sixthly.* The abdomen of both children and adults of strumous habit has a sagged appearance, and is tumid in the lower portion.

*Seventhly.* The lax and weak condition of the muscular system is owing to a disproportion in the organic elements of the fluids. The increased growth of the cellular and adipose tissues are dependent upon the same cause in childhood.

*Eighthly.* The weak condition of the muscular fibres permits the viscera of the abdomen to gravitate to the pelvic cavity, and not unfrequently, the fluids to the most pendant part.

*Ninthly.* It is necessary in the treatment of this disease to restore the physical, as well as the organic functions.

*Tenthly.* To prevent, or correct the consequences arising from this diathesis, we must correct the predisposition, and obviate the causes which are capable of exciting the latent diathesis to action.

*Eleventhly.* The bowels being permitted to gravitate is one of the principal exciting causes of the disease, and to a large class of chronic diseases, is a predisposing cause in some, and an exciting one in others.

But as the object of these essays is not so much a scientific disquisition on the diseases herein enumerated, as a narrative of more than thirty years practical observations made in an extensive practice in various parts of the western country, it will be understood that in making out the indications, and suggesting the means for the alleviation and cure of the disease, the approved remedial agents to meet the indications, and various changes, are continued in connection with the additional remedies herein submitted. In all cases, however, I have been governed in the application of remedies, by the indications of the disease, without bending to theories or existing opinions, and have applied such hygies or prophylactics as I conceived best adapted to the condition of the patient. But in this particular disease much may be gained by early treatment. The unnatural development of the cellular and adipose tissues is a delusive mark, which deceives the parent and prevents the unobserving of the profession from discovering the early existence and movements of this double faced diathesis, until it is too late to hope for relief from remedies. Hence the necessity of the closest scrutiny and of correct judgment, to ascertain its earliest symptoms, to detect the latent malady and arrest its devastating influence in its unsuspected state.

In this disease the intelligent physician will discover an unfavorable prognosis, when it is fully developed in

the respiratory organs, or on the mesenteric glands, but such indications should not paralyze his efforts. The physiological and pathological movements of the economy, in procrastinating the tendency to death, and occasionally effecting a cure, are hopeful indications, and must not be forgotten in the application of remedial agents.

The writers of all ages having admitted that strumous habit is inherited in a majority of cases, and the remainder from many causes, are owing to engrafted diathesis, as has been shown, whether inherited or engrafted, the disproportion in the organic elements is the same. This being understood, the next great difficulty is to discover which of the agents of the *materia medica* will change the pathological condition, and place the disease under our control. In my early practice deeming it important to discover if possible this desideratum, I was led, when the stomach was deranged, and the circulation of the blood determined to the lungs, to the use of emetics, cream of tartar and jalap, with alteratives and such like remedies to regulate the bowels and reduce the quantity of white fluids. But these agents, I found, were only suited to certain conditions arising from the virus, or accidental causes, and were too active to be continued for any length of time, without increasing the pathological condition of the system. I next tested the preparations of iron, many of which had a reputed property for increasing the red part of the fluids, and acting as a tonic and alterative; but here again, I found they only acted as diuretics, and so long as the effect continued, the patient's strength, to some extent, improved. This re-

sult being uniform, I determined to test all the diuretic and diaphoretic tonics and alteratives, that seemed from their effect upon the system, to combine the greatest amount of active properties, in exalting one set of organs in favor of life and depressing others in favor of the virus. These experimental tests resulted in a preference to the constitutional agents which will be found at the conclusion of this essay. They are to be employed in connection with agents now in use, which are best calculated to relieve the symptoms, and divert the circulation from the local seats, without interfering with the constitutional course prescribed for the change of the diathesis.

*Treatment.*—As it has been shown that the diseases arising from a strumous habit derive their origin from an inherited or engrafted diathesis, which gives a preponderance in favor of the white over the red fluids, and the tissues that derive their nutritious supply from them, it will be important to keep in view the indications necessary to relieve the local seats that are likely to be established by the diathesis, and apply the remedial agents that are calculated to obviate the tendency of such local seats, and restore the balance between the organic elements of the fluids, and the nutritive vessels that preside over the muscular system. This being understood, the following general indications are given.

1st. To meet the first general indications, we should apply the remedies that would diminish the quantity of white fluids, and increase the red.

2d. Restore the general tone and vigor of the muscular system.

3d. Correct the functional derangement of the ali-



mentary canal, the kidneys and skin. The remedies required for this class are applicable from infancy to adult age, except in cases where there is high inflammatory action. In the more advanced or ulcerated stages, we must first diminish the acute or chronic inflammation of the mucous membrane or organs.

4th. We must diminish the morbid excitement and irritability of the system.

5th. To lessen so far as remedial agents are capable the determination of the circulation, from the inflamed structure.

6th. As the diseases arising from strumous habit, depend upon the disproportions of the organic elements of the blood, the principles in the cure will be found in such remedial agents as are calculated to restore the loss of balance in the organic constituents. This must be looked upon as the desired object of the art, which is to be obtained by assisting the physiological laws of life, through the natural emunctories of the economy, which are provided as outlets to the system. Hence exercise, bandages, diuretics, diaphoretics, alteratives, diet and tonics, are to be used, to meet the indications as they occur. For instance, if the skin is not healthy, restore its functions, and in like manner attend to the muscular system, kidneys, and digestive organs. By sustaining them, and gradually soliciting an exalted action by appropriate remedies; first of one, and then the other, as will be indicated in the progress of the disease, will overcome the diathesis. The materia medica contains the adequate medicinal agents, but as I have been obliged in my clinical pursuits to form some new compounds, I will at the close of this essay, submit them, with their



doses and effects, that the physician may meet the indications, according to the deranged functions before him. Believing with many of the profession, that specific directions are unsafe and calculated to make empirics rather than practitioners, I have no hesitation in saying that the bedside is the only place to determine the remedies that are required to restore the lost harmony. Members of the same family laboring under the same disease may require different remedies, owing to the peculiarity of constitution, or locality of the disease, though the object to be gained in each be the same.

The remedies therefore that have been found best adapted to the first indication, are suitable suspensory jackets, or an abdominal supporter, to prevent the viscera of the abdomen from gravitating from their natural position, and to enable the patient to partake of the proper exercise in the open air. But the exercise should be moderate and divided between the forenoon and afternoon, and if not too weak, to be continued until perspiration is freely established. Where the invalid is feeble, a moderate quantity of old rye whiskey and water, should be taken to brace the muscular system and promote perspiration, and after the exercise, a similar quantity to prevent the system from sinking too rapidly. Our ability to exercise is in proportion to the strength of the muscles, and as the strength of the system increases, the spirits should be gradually diminished and the exercise increased. By strictly persisting in this course, with a rich nutritive and digestible diet, the diathesis is diminished, slowly in some, until the system is free from the disproportions of the organic elements; while in others

it appears not to diminish the disproportionate growth between the muscular, the cellular and adipose tissues. But should the system fail to improve under the use of the whiskey, exercise and diet, medicines that act as diuretics, and tonics may be given. The best I have found in my practice is the *APOCYNUM undras amifolium* or *dogs-bane*, or *apocynum cannabinum*. Fifteen drops of a tincture prepared of these articles, given in a wine-glassful of the decoction of dandelion, may be given three times a day. The decoction should be boiled so as to extract the strength of the root, that each wine-glassful will contain at least the property of two drachms. Under the influence of this medicine, one-third of the strumous constitutions will improve, and one sixth will be cured, or at least, I have had many cases that have been relieved for twenty-six years without a recurrence. During this course of treatment, it is not unfrequent that the invalid will be covered with ulcers about the head, neck, and indeed over the whole body, with occasional cellular abscesses. Where the lymphatic glands suppurate, or become indurated in the neck, axilla, or groin, the suppurative process should be promoted by emolient poultices; but if the poultice should fail to soften the indurated glands, the salt or brine mush poultice, should be applied until there is a free discharge; which after the application of the salt poultice, occurs in a week or fortnight. After the ulcerative action has been established the discharge should be kept up by the ordinary remedies and dressings, as recommended in surgical works, until the glands are reduced, or the enlargement has subsided. But should the dressing be insufficient to keep open the ulcers and promote the

discharge, the salt poultice should be resumed for a day or two only. This poultice should not be permitted to rest upon any more of the integuments than is necessary for the suppuration of the glands, as the salt will ulcerate the part it rests upon; it should be very salt and renewed night and morning. In the use of this poultice, the inflammation and irritation will be regulated by emollient poultices and aperients. This must be looked upon, and considered as the desideratum in the cure or alleviation of this diathesis where it is seated in the lymphatic glands. But if the remedies, and the exercise as recommended, fail to check or mitigate the tendency, further aid will be required.

I have observed that where the exercise and the remedies recommended had failed to check or mitigate the tendency of the diathesis, the agents were not sufficient to maintain the integrity of the perspiratory, digestive, hepatic, and intestinal functions. In such constitutions the skin is most generally of a dry, husky, sallow hue, with a motly appearance. From these indications the medicines with the exercise and supporters, must be sufficient in their remedial effect to maintain the healthy action of the bowels, kidneys, liver, and skin; if not, recourse must be had to two or three small doses of calomel—two grains night and morning may be given. Twelve hours after the last, follow it with a dose of cream of tartar and jalap, which will spur the biliary organs, and gradually bring them back to their natural action by a different class of remedies.

Much caution is required in the use of mercurial remedies, as they increase the already weakened muscular system. To restore the action of the skin, liver,

kidneys, and internal secretion, take from fifteen to sixty minims of the tincture described under the head of *apocynum cannabinum*. This tincture is a diuretic, aperient, stimulant and alterative. The dose to be extended no further than will maintain the bowels in a soluble state; during the use of the tincture, the entire body should be sponged every night with whiskey. In a majority of cases, the tincture will restore the functions of the skin and internal organs, unless the lungs or mesenteric glands be too fully crowded with tubercular deposits. Where febrile excitement springs up from the use of it, omit it for a week or a fortnight, and give occasionally a dose of jalap, which is one of the best cathartics that can be used in this diathesis. It uniformly diminishes the quantity of white fluids, and where the bowels are constipated, or in a loaded condition, a few active doses combined with cream of tartar, repeated every third or fourth day, will remove the torpor of the bowels, and febrile action, that may accidentally arise in the early stages of the disease. In the course of the prescription it will be recollected that emetics, chalybeates, hydriodate of potassa, and sarsaparilla, with other remedies as the symptoms and condition of the organs may indicate, should be given. If catarrhal symptoms or congestion of the lungs are present, an emetic or two will give relief. When the debility of the muscular system is not improved by exercise, the tincture and chalybeates may be resorted to, and when the general constitution is apparently free from the diathesis, except indolent lymphatic enlargements, hydriodate of potassa, iodine, and sarsaparilla may be given; but let it be observed that the various preparations of iodine, in a majority of cases, are only admis-

sible for a short period, and then as a stimulant, to dormant organs or relaxed tissues. The ultimate effect where long continued, is deleterious upon the mucous membrane. Many preparations of iodine are of great value in cases where the skin, eyes, and slight lymphatic enlargements manifest the local seat of the disease; but by a prudent and persisting continuance of the exercise with such constitutional remedies as will hereafter be explained, the iodine may in some measure be dispensed with. In the early stage, a very large majority may be cured or have the virus so far subdued as to enable the patient to live three score years and ten, if taken in the incipient stages.

Exercise alone is of little benefit, in this order of disease, though it be of the most approved kind, that of riding on horseback. Exercise to be beneficial to the invalid must be selected to suit the disposition of the individual, so as to exercise the mind as well as the body. The human family is so organized as to forbid a submission to arbitrary rules or directions, and hence the necessity in such cases for the physician to make himself acquainted with the means of the family, or the individual, before the prescription is given. The inclination should also be consulted, and the confidence of the patient secured by consulting as to the propriety of the course. But the exercise is not sufficient, no matter how well directed, to change the diathesis, and we have first to inquire what is expected from its effects upon the general system?

If we judge from the most approved writers, we are to expect from the exercise an improvement in the general tone of the muscles, by which the digestive apparatus would be increased, in vigor, and the



entire economy benefited to a greater or less extent. If continued each day for a sufficient length of time, the sensible exhalation of the skin is increased, and of course the insensible in like proportion. The increase in the strength of the muscular system, is certainly a grand link in the chain of restoration, and the improved condition of the digestive organs is of equal importance as the entire organism is dependent upon this vital laboratory for its supplies ; but it has been shown, that in the strumous diathesis it is not unfrequent that the digestive organs with the outward appearances, are doing well ; while the latent disease still continues in the system, ready to be called into action, by the first irritating or debilitating cause. By the same writers who have judiciously prescribed the exercise, it will be seen, that the weak condition of the muscular system, should have admonished them to prepare their patients before commencing the exercise. The admitted feeble condition was, however, not sufficient, and notwithstanding the debility, the invalid is directed to exercise in proportion to his strength, in the open air, and nine out of ten are frightened in a very short time by the rapid increase of the symptoms produced from the gravitation of the bowels. Hence confidence is lost, the profession abandoned, and resort is had to the boasted nostrums of the day for the cure of the disease. But would this have been the case if the invalid had been directed to apply a suspensory bandage, or a supporter, to prevent the gravitation of the viscera of the abdomen? According to the medical writers, the human system receives much benefit from exercise ; but from my experience in strumous constitutions there is not more than one in twenty that



escapes exhaustion from the first attempt, and as soon as they place themselves in a position for rest, and give the body a forward inclination, the axis is changed, and the small intestines and sigmoid flexure pass into the lower pelvic cavity, where they remain, unless restored by the recumbent posture. My residence in a state where the major part of the white population are actively engaged in tilling the soil, and where there exists a large slave community, has afforded me ample opportunities for examining, both before and after death, the truth of this position.

By exercise, when guarded by bandages, suitable clothing, diet and medicine, and so regulated as to maintain the functions of the skin, kidneys and digestive organs, with a gradual solicitation of these functions, and the pulmonic exhalations, strumous diathesis may be removed from children, and from the adult when in its incipient stage. The indications in the more advanced stage, are,

- I. To diminish the irritability of the system, and the acute and chronic inflammation of the mucous membranes, and organs, and to divert the circulation from the inflamed parts.
- II. To prevent tubercular formation in one, and the ulcerative process in the other.
- III. To change the diathesis, which consists in an excess of white fluids, and a deficient quantity of the red.
- IV. To increase the crassamentum of the blood where hemorrhage occurs from tubercles of the lungs.

The first indication may be met by leeching, cupping, ipecacuanha, Dover's powder, and counter-

irritants. The second, by diuretics, diaphoretics, sea-baths or issues in the arms, if the lungs be ulcerated, with alteratives, tonics, and stimulants. In addition, resort should be had to frictions and counter-irritants, such as tartar emetic ointment, and to the exaltation of the secretory functions of a distant set of organs, with specific medicinal agents, that will invite the circulation to the parts. For instance, the liver and kidneys should be excited, if the lungs are the local seat—if the mucous coat of the bowels, mesenteric glands, the skin and kidneys—if the lymphatic glands, the exhalents of the bowels should be called into action. The third is to be met by alteratives, to sustain the digestive organs, as near as possible with the virus existing in the economy, and gradually solicit alternately and jointly, the functions of the skin, kidneys, lungs, and exhalents of the bowels. This requires the aid of all the constitutional agents, alternated in accordance with the symptoms which can only be made out in the sick room, and by the known properties of the remedial agents. To meet the fourth indication, table salt may be taken freely when the hemorrhage is profuse, and regularly after the first appearance for at least eighteen months. The quantity should be in proportion to the emergency, from two drachms to an ounce dissolved in half a glass of water, and repeated until the hemorrhage is checked. After which the doses will be varied from twenty to sixty grains twice or thrice a day. If the mucous membranes of the stomach and bowels are very irritable, the doses should be small. I have been obliged to reduce the dose to thirty grains per day, and that divided into six equal parts, and taken every two hours. By the salt and diuretics,

such as digitalis, the violent form of the disease may be checked; but digitalis, though it acts promptly as a diuretic, has a deleterious effect upon the mucous membranes of the stomach, overbalancing its salutary effect, if continued for any length of time. The salt in small doses acts as a tonic, and will, if continued, go very far in diminishing the white fluids, and in increasing the red, and is one of the most potent remedies in the hemorrhagic form of the disease. I have tested this remedy in my own system for thirty years, and in many others with extraordinary effect. I have also tested it in uterine hemorrhage, and bleeding from the nose and gums, and have found it equally prompt in its action in all debilitated constitutions. The salt increases the crassamentum of the blood, and in large doses produces nausea sufficient to influence the heart and arteries. It is peculiarly adapted to constitutions that are subject to hemorrhage from any cause except plethora. After the strumous constitutions have been neglected until the morbid action has established the stage or local termination called tubercular consumption, it is a hopeless case, and the cures which take place appear more the result of accident than the effect of medicines. But as spontaneous cures do occur after the tubercular deposits become converted into pus-like fluid, expectorated or discharged, the physician should watch the movement and tendency of the virus and assist the efforts of nature. In such cases I have uniformly directed the constitutional course, combined with tonics, and counter-irritants that were calculated to divert the circulation from the local seat. I found the seaton or issue in one or both arms below the insertion of the deltoid muscle by establishing a

counter-drain, and by attending to the constitutional symptoms, retarded the progress of the disease for many years in some individuals, and in others a spontaneous cure was effected. In the ulcerative stage, I found a saturated tincture of *sanguinaria canadensis*—six drops three times a day, given in a decoction of *dandelion*, regulated the action of the heart, augmented the secretions of the liver, and improved the entire system. The tincture, in the constitutions where the local seat terminates upon the osseous system termed white swelling has always a good effect. The term tonic in strumous diseases is not intended to apply to the general class of remedial agents, as found in the materia medica; but only to such as are combined with diuretic effects. The best remedial agents in the treatment of this order of morbid action, are to be found in that class termed emetics, diuretics, diaphoretics, and alteratives. Some however, of each class, are objectionable from their effect upon the intestinal mucous membrane. Colchicum, digitalis, with the excess of the preparation of iron and iodine, may be resorted to when the lungs are ulcerated as adjuvants, but no further. Expectorants are not admissible in this disease; at least such as are compounded for the cure of consumption, by “consumptive curers.” Mucilaginous drinks, combined with ipecacuanha, hyoscyamus, or some one of the preparations of opium, will be sufficient, unless the vascular action be too high for the controlling powers of the ipecacuanha. In such the antimony similarly combined will control the inflammatory action, and attenuate the fluids. All expectorants, except the nauseants, anodynes and muc-

laginous articles, must necessarily shorten the days of those who are deluded by their therapeutic effect.

Having thus given the outlines of my mode of treatment, I subjoin the compounds, with the effects and appropriate doses for adults, to enable the profession to determine their utility, and prescribe them as the local and constitutional symptoms indicate.

### APOCYNUM CANNABINUM.

#### *Indian Hemp.*

The medicinal properties of this article are emetic, cathartic, and diuretic, as represented in our medical dispensaries, but from my observation, it is also alterative, diaphoretic, and tonic. In my practice I have always used it in the form of a saturated tincture, and powder. The dose of the latter is from six to eight grains three times a day. The tincture is made as follows :

Take of the root, coarsely powdered, one pound ; cochineal powdered, two drachms and a half ; proof spirit, two pints ; macerate fourteen days, express and filter.

The dose is from fifteen drops to a drachm three times a day. The best mode of regulating it is to observe the effect produced upon the bowels, which should be kept only in a soluble state when the object is to produce a tonic effect. As an alterative and diuretic, where high inflammatory action exists, the dose may be increased to one and a half drachms twice or thrice a day.



## ASCLEPIAS TUBEROSA.

*Butterfly-Weed.*

The medicinal properties are, as laid down in the Dispensatory, diaphoretic, and expectorant, without being stimulant. In large doses it is also cathartic. The principal properties, according to my experience, are diaphoretic, aperient and tonic ; as a diaphoretic, it should be given in decoction. One ounce of the root to a pint and a half of water, boiled down to one pint. One ounce of this decoction may be given every two hours until the effect is produced. The saturated tincture may be made in the same proportion as the above, and given in drachm doses three times a day, which promotes the secretions, and pulmonary exhalations.

## EUPATORIUM PERFOLIATUM.

*Thoroughwort.*

The medicinal properties of this article, though fully described in the medical Dispensatory, I use as a tonic and diaphoretic in strumous habit.

## TRIOSTEUM PERFOLIATUM.

*Fever Root.*

This article is said to be cathartic, and in large doses, emetic ; according to the late Professor Barton, diuretic. From my experience, it possesses tonic and



diuretic properties, and in very large doses emetic and cathartic, either in powder or extract. The best mode of administering it in this class of diseases is in the form of a saturated tincture, which may be made as above, and given in doses of one drachm and a half, mixed in one ounce of port wine where there is much debility.

#### SATURATED TINCTURE OF SANGUINARIA CANADENSIS.

##### *Blood Root.*

Take blood-root coarsely powdered, half a pound, diluted alcohol two pints; macerate ten days, express and filter through paper.

This article, in the United States Dispensatory, is said to be "acrid, emetic, with stimulating and narcotic powers. In small doses it excites the stomach and accelerates the circulation; more largely given, it produces nausea, and consequently depression of the heart, and in full doses, vomiting. The effects of an over dose are violent emesis, a burning sensation in the stomach, tormenting thirst, faintness, vertigo, dimness of vision, and alarming prostration."

Such is the history of this invaluable article, which to my notion, has been too much neglected. During a practice of thirty years I have found it uniform in its alterative powers. In medium doses stimulant, and tonic in small doses; and when given night and morning in powder or saturated tincture, in ordinary doses, say two grains of the powdered root, or eight drops of the saturated tincture, it has a decided influence over the heart and arteries without producing nausea.

In combination with the dandelion extract, or decoction, it accelerates the secretions of the liver and kidneys. Given in combination with the extract of conium, I have found it of great advantage in chronic diseases of the spleen and liver, originating from strumous habit. The saturated tincture has been prescribed in connection with the fluid extracts and decoctions prepared by me in the treatment of struma, as well as in a variety of chronic diseases; and in all, it has proved serviceable. The sanguinaria, like all heroic remedies, requires to be given in moderate doses and not continued too long at a time.

#### TINCTURE PRUNUS VIRGINIANA COMPOUND.

##### *Wild Cherry.*

Take of the recent bark, bruised, three pounds, cimicifuga racemosa, powdered, one pound, diluted alcohol four pints; macerate one pound of the prunus virginiana with one-third of the cimicifuga in a close displacement apparatus five days, then remove the cork and displace the tincture and remove the old material, and so pass the spirit through the two remaining portions. After it is displaced the third time, filter and add three drachms oil anise, and after three days, add six ounces of simple syrup. The dose of this tincture is from one to two drachms twice or thrice a day.

In this simple tincture, if the bark be procured fresh each day that the spirits are placed in the apparatus for macerating, the tincture will be found to contain all the active principles of the prunus virginiana combined with the additional articles. This

tincture quiets the nervous system; promotes digestion, and increases the pulmonic exhalations; by combining with it a little hyoscyamus at bed time it will tranquilize the system and afford comfortable rest. This tincture may be variously combined with diuretics, diaphoretics, anodynes and stronger alteratives and aperients. It combines as large an amount of the hydrocyanic acid as can well be held in solution. Where hectic fever in strumous habit is present, it has a salutary effect. By its combined properties it quiets the nerves and reduces the action of the heart; by taking it three times a day in three ounces of the cold infusion of fresh bark, of the *prunus virginiana*, it is highly useful in general debility and dyspepsia. The quantity of the bark may appear a waste of material, but I have tested from one to three pounds, and find it contains but a small portion of the hydrocyanic acid, which is its principal medicinal property. The tincture is improved by passing the spirits through each parcel twice. The dried bark makes a very inferior article for abating the nervous irritation, but acts as a tonic without increasing febrile action.

The compound fluid extract of the *smilax officinalis*, or yellow sarsaparilla of the United States, is made as follows:

Take of the root bruised one and a half pounds; Honduras sarsaparilla, bruised, half-pound; xanthoxylum bark of the root or small fibres, quarter pound; dulcamara (bitter sweet), dried twigs, half pound; liquorice root, bruised, three ounces; diluted alcohol, ten pints; digest twenty days, express, strain and filter; evaporate the tincture in a water bath to six-

teen fluid ounces. Then add white sugar twelve ounces, and when the sugar is dissolved remove it from the fire. Dose, half a drachm three times a day.

This fluid extract is an alterative, tonic and aperient, and by giving it in a wine-glassful of the infusion of *eupatorium perfoliatum*, made half an ounce to the pint of boiling water, when the skin is inactive, a free diaphoresis is induced, which will relieve any catarrhal attack without interrupting the constitutional course; and where the kidneys fail in their functions, the extract should be given in the decoction of dandelion. Should the liver flag in its functions, six drops of the saturated tincture of *sanguinaria canadensis* should be given night and morning, in connection with the extract dandelion decoction. Where the heart and arteries are accelerated, the *sanguinaria* is equal to the *digitalis*. But if much febrile excitement prevails, half a grain of *ippecacuanha* every four hours will generally relieve the irritative fever without producing debility.

### CINICIFUGA RACEMOSA.

#### *The Root.*

From the medical properties as given in the Dispensatory, this article is considered a mild tonic, with the property of stimulating the secretions, particularly those of the skin, kidneys and bronchial mucous membrane; and by the late Professor Physick, as stated by the editor of the *American Journal of Medical Sciences*, it is said that ten grain doses every two hours will prove successful in the cure of chorea. My experi-

ence is corroborative of the tonic and antispasmodic properties, as it certainly has a decided influence upon the nervous system in weak and irritable constitutions; the functions of the skin and pulmonary exhalations are also increased by a free use of the article. The dose of the powdered root as used in my practice is varied from ten to twenty grains twice or thrice a day. The powder is easily formed into pills, with all the solid extracts and gums so as to have its medicinal effects, conjointly with a great variety of prescriptions; and as this is one of the valuable indigenous plants of the United States, I subjoin the compound fluid extract, with further remarks.

The compound fluid extract of *cimicifuga racemosa* is made of the root coarsely powdered, one pound, *cistus canadensis* or *frost wort*, one pound bruised or coarsely powdered; *inula helenium* or *elecampane*, the root coarsely powdered, one-fourth of a pound, *apocynum cannabinum* root one-fourth of a pound coarsely powdered, *liquorice root*, bruised, three ounces, diluted alcohol ten pints; digest for twenty days, express, strain, filter and evaporate, and complete as the preceding fluid extract. The dose of this fluid extract is to be varied from a half to one fluid drachm, three times a day. This extract will be found to improve the tone of the digestive organs, and from its salutary effect upon the mucous membrane of the lungs and alimentary canal, the general system is improved, and where the functions of the liver and kidneys are impaired, it should be given in the decoction of dandelion of the strength and quantity as before directed. This extract is particularly well adapted to chronic bronchitis, and when given with the dandelion it



lessens the determination of the circulation to the inflamed membrane by its diuretic effects.

All the above extracts when combined with diuretics and diaphoretics diminish the action of the heart, whilst they improve the general economy through their tonic and alterative powers. The compound fluid extract of *cimicifuga* should not be taken by any individual unless prescribed by a physician, as it is liable to so charge the system as to affect the head in some constitutions, yet I have not known it to have any serious narcotic effect.

#### PHYTOLACCA DECANDRIA.

##### *Poke Root.*

The fluid extract of this root is made as follows:—

Take of the root coarsely powdered, one pound; yellow sarsaparilla coarsely powdered, one pound and a half; dandelion root bruised, one pound; liquorice root bruised, three ounces; diluted alcohol, eight pints—digest twenty days, express, strain or filter, evaporate the tincture in a water bath, to sixteen fluid ounces; then add white sugar ten ounces, and when dissolved remove it from the fire. The dose is half a drachm morning and night.

This extract is a powerful alterative, and is one of the best in the incipient stage of the disease; by giving it in the cold infusion of the *prunus virginiana*, one ounce of the fresh bark bruised to half a pint of water, will improve the digestive organs, and impart tone to the entire economy. It will, if continued too long, produce tenderness of the gums, and soreness of the



throat, in which event it should be discontinued for a week or more, and some one of the other extracts substituted to keep up the constitutional effect. This extract combined with sixty grains of hydriodate of potassa and ten grains iodine, dissolved in two ounces of rain water, or distilled water, to twelve fluid ounces of the extract, is an excellent anti-syphilitic remedy. It is also good in rheumatism and such like diseases; scrofulous eruptions as they are called, are speedily removed by this extract, by taking it in the decoction of the recent root of burdock. The decoction should be made by boiling four ounces of the recent root in two pints of water to half a pint.

#### FLUID EXTRACT SARSAPARILLA COMPOUND.

Take of *Honduras sarsaparilla* one pound, *yellow sarsaparilla* of the United States half a pound, each ground or bruised, *xanthoxylum fraxinum*, bark of the root or small fibres of the root procured in the winter, or the bark of the small branches obtained in the spring or summer, one fourth of a pound coarsely powdered, *Indian arrow wood*, bark of the root, four ounces coarsely powdered—*liquorice root*, three ounces bruised, diluted alcohol, ten pints—digest for twenty days at a common temperature, express, strain, filter and evaporate the tincture in a water bath to sixteen fluid ounces. Then add ten ounces of white sugar, and as soon as the sugar is dissolved move it from the fire. The dose for an adult is half to a fluid drachm, three times a day. This fluid extract is alterative, aperient and stimulant, and will be found a valuable remedy in all the forms of disease

arising from strumous diathesis. By adding sixty grains of hydriodate potassa, iodine, ten grains, dissolved in two fluid ounces of distilled or rain water, added to one pint of the extract, ulcers about the head, face and eyes, will be speedily relieved if the digestive organs are properly regulated. Two grains corrosive sublimate, and forty-five grains of extract of conium dissolved, and added to one pint, is an admirable anti-syphilitic remedy in many cases where the disease has become constitutional. In strumous habit, the mercury should be left out, and the extract conii added—a fluid drachm contains not quite half a grain, so that three drachms per day will be about one and one fourth of a grain to the day—to be increased agreeably to the judgment of the physician. I have increased the quantity of conii in this compound to three grains per day in chronic enlargements of the uterus, in strumous constitutions.

This fluid extract is one of the prompt articles in the treatment of strumous diathesis, and will, in connection with the decoction of dandelion or eupatorium perfoliatum, increase the functions of the skin, liver and kidneys. It also, in some constitutions, acts as a cathartic, in which event the dose should be diminished.

#### COMPOUND FLUID EXTRACT OF AMYGDALUS PERSICA.

*Peach leaves, or the bark.*

Take of the recent bark of the small twigs or branches one pound bruised; *aralia nudicaulis* or *false sarsaparilla*, the root bruised, half a pound; yellow *sarsaparilla* of the United States, half a pound; me-

zereon, six drachms; liquorice root, three ounces; diluted alcohol, ten pints, macerate for ten days at common temperature—then strain, express and filter—evaporate the tincture in a water bath to sixteen fluid ounces—add white sugar eight ounces, and remove from the fire so soon as dissolved. This preparation is aperient, alterative and tonic—dose from a half to a fluid drachm three times a day. The advantages gained by this compound in the treatment of strumous children, is the immediate destruction of worms, and the change produced on the secretions, which prevents their formation; at the same time the child's general health is improved. The dose for a child, one year old, is from five to eight drops twice or thrice a day. The preparations of iodine are conveniently administered in this fluid extract, and it may be given in combination with either of the fluid extracts or tinctures, when the bowels are too tardy in their movements; given in half drachm doses with one drachm of the compound saturated tincture of the *prunus virginiana*, it will be found to improve the digestive organs, and abate the morbid sensibility which is so manifest in diseases of the stomach and bowels. I have, with the fluid extract and tincture given in combination, and the use of supporters and bandages, cured a great many cases of dyspepsia, without resorting to any other remedial agent.

## F E V E R.

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FEVER, from its frequent occurrence, its prevalence in various sections of our country, and its generally fatal tendency, has elicited the attention of the profession more than any or all of the diseases to which the human family are subject. Its devastating character as an epidemic throughout the world, has given its history and progress more than ordinary importance, and engaged in its treatment the talent of the profession in every age. In no part of medical science has so much laborious research been expended, nor has the subject escaped the controversial difficulties that usually prevail in relation to causes. And as it still remains a matter of doubt with the systematic writers, what part of the human system, or particular vessel is first impressed by the morbid agent, I shall endeavor to show in the present essay, that the first impression is made upon the capillary vessels and nerves, in their terminating extremities, on the two tegumentary surfaces and organs, at their connection with the discerning arteries and secretory vessels. And when reference is made to the capillary vessels and nerves, I wish it understood that the connections are included.

But as there has been, and still exists, a diversity of opinion in relation to the first local impression made upon the system, it will be necessary, in establishing my position, to examine the natural emunctories that have been wisely established as outlets to guard and protect the system against the retention of effete matter in the circulating fluids. By these outlets, we find nature, under the influence of an inherent power, when the system is in the full enjoyment of health, throwing off every thing that is foreign to the laws of life ; while in fever those excretory outlets are arrested or perverted in their functions, and as the first impression made upon the system by any morbid agent, is discoverable through the secretory and excretory organs, a cursory view of their offices, and the two systems that are liable to derangement, will be necessary for a clear understanding of the subject.

The body being covered with a tegumentary substance called the skin, through the pores of which, the sensible and insensible transpiration pass, it will be seen that in a majority of attacks, the functions of those emunctories are, to a greater or less extent, suspended or morbidly exalted. This fact, if there were no other, affords at least presumptive evidence that the first seat of the disease will be found upon their extremities. But the anatomy of the tegumentary system demonstrates the final termination of the nerves and capillary vessels, with the branches of the arteries, which exhibit the connection of the secretory follicles, that separates from the fluids, the sensible or insensible exhalations. When examined by a microscope, it appears as though these emunctories are composed of the extremes of the nervous and



circulating systems, and that in their ramifications their functions are dependent upon their healthy condition. The internal tegumentary system is the mucous membrane, lining the internal organs, and on their surface, we find the same arrangement of the two systems, in their terminations, and in a majority of cases, in the initial stages of fever the functions are alike deranged. The lungs having similar offices and endowments, are observed to suffer in like manner, and indeed, when we confine ourselves to close observation, the same may be said of the functions of the liver, the kidneys, and of all the secretory organs. From their arrangements, and from what we observe in health, and in disease, it is a fair inference that the changes produced by morbid agents, are first upon these two systems. From some causes the internal nerves and capillaries receive the shock, and from others, the external extremes become the subjects of the impression. Consequently it is evident that the two systems are the first deranged. This being uniformly the case, it is of but little importance in the cure, whether the morbid agent be heat, cold, or marsh malaria. But to say, that the nervous system is the first in fault, in all the forms of fever, would be absurd, and the same remark may be applied to the charges against the circulating system.

The mistaken notions of the humoralists and their antagonists, in my opinion, derive their origin from a misapprehension of the dependencies of the nervous system, and the vital circulating fluid in their intimate connexions. The brain with all the other parts of the system, is formed and sustained from

this vital fluid, which is declared to be the "life of the animal creation;" and from the facts observed in the organization of man, it is already manifest, from the different degrees of sensibility and irritability in the tissues. It is true, the nervous system possesses a greater degree of sensibility, but it must not be inferred, that the balance of the subordinate systems is wholly dependent upon the nerves for their sensibility or susceptibility. Such an inference would leave these systems without the capacity to act, or to be acted upon, and would assuredly destroy the principles of life contained in the constituent elements of the blood, which constituent elements gives to each tissue or organ the peculiar property for the purpose of endowing the parts with the energy requisite to the performance of their functions.

For the purpose, therefore, of contrasting the acknowledged causes and effects, we will examine some of the more prominent, that act deleteriously upon the human system. The first are recrementitious substances retained in the circulating fluids—such as checked perspiration, bile, and uric acid. These recrementitious fluids, when retained in the circulation, frequently give rise to disease, by establishing irritation. Checked perspiration is also most frequently acknowledged to be a secondary consequence; so also is bile and uric acid. But the influence of such causes is calculated to establish irritation and vascular action; and checked perspiration not unfrequently deranges the functions of the kidneys by the vicarious action induced by these organs which produces exhaustion. The second cause to which the writers refer is irritation produced by indigestible substances, or by

worms, &c. generated within the body. The third cause is attributed to deleterious substances floating in the air, or the variable condition of the atmosphere; such as miasmata, noxious gases, heat, cold, electricity, humidity, and contagious or mechanical causes. That the above causes are calculated to produce disease, no one doubts; but are there not many reasons for believing that an excess of these causes is harmless, unless too long continued in action, or when the system has been previously weakened by antecedent causes. In health we find the human system is capable of resisting heat and cold, in a wonderful degree. The fire-king, at a temperature sufficient to roast a beef steak, is enabled to withstand the heat without apparent injury, and mankind enabled to approach the other extreme, and brave the cold of the frigid zone, where mercury is frozen, without injurious consequences. But if the system had been previously debilitated, either of the above causes would have established morbid action. The effect of cold or heat, too long continued, is well understood by the profession; and in their extremes, or sudden vicissitudes, is admitted as a fruitful predisposing cause of fever in some, and in others, an exciting one. In many of the other admitted causes, the constituents are not understood, nor is the channel known by which they enter, although it is supposed that it is by inhalation of animalculi or by being incorporated with the saliva, and taken into the stomach. Either of which must make a direct impression, to establish morbid action. If this be the case, is it not probable that many of these agents are condensed upon the cutaneous surface, and make a direct impression upon the nerves and capillary vessels through the

external absorbents? From what I have observed in marshy districts, I believe those agents gain admittance through inhalation, as well as by absorption, both externally and internally, which is the popular opinion of the medical world; but I do not believe it is necessary for the morbid agent to become incorporated in the circulating fluids, and thereby change the constituents of the blood before the poison is capable of establishing morbid action. Nor is it consistent with the physiological laws observable in the movements of the economy; for on being impressed with a medicinal agent, we find the vital action making an effort to expel the offending cause by the outlets provided for that purpose; and through these natural outlets, deleterious agents are eliminated and thrown off from the system in such a hurried manner, that it is impossible that they should have been conveyed into the circulating mass, and passed through the heart before morbid vascular action was established.

To admit in all instances the incorporation of such materials with the blood, would be presuming that nature had not been provided for in the way of protection and defence. That many articles are absorbed, and conveyed into the fluids cannot be doubted; but is it not reasonable to suppose that the various deleterious agents inhaled and absorbed, are only permitted to enter that part of the circulating system which conveys the limpid or white fluid? as those capillary vessels appear to be possessed of an inherent power to resist the entrance of any material that is incompatible with the well being of the economy, until the vital forces are enfeebled or overcome by the long continued application of morbid agents, or some

violent cause. After which the entire circulating fluid becomes contaminated by the virus which has entered the system. Hence morbid vascular action is frequently established, giving rise to fever, without the entrance of the morbid agent into the red part of the circulating fluid; as we see that the force of some of the noxious gases and poisons is sufficient to destroy life, when brought in contact with the respiratory mucous membrane, or any part of the vascular system. In many cases the effect is too sudden to admit of the belief of its absorption. Yet many of these deleterious agents, when absorbed in a diluted form, are completely under the control of the vital forces of the system. In some marshy districts, the miasm is so abundant as to derange the capillary vessels and nerves, and in some constitutions, to establish fever of an intermittent or remittent type, in a few days: whilst in others, the effect of the malaria is successfully resisted, and thrown off by the vital action of the system, notwithstanding the constitution is enfeebled by the continued application of the miasmata. In such cases, notwithstanding the efforts of the vital power of the system, the aspect of the countenance gradually assumes a sallow hue, until in some, the capillary vessels and nerves are so far overcome, that dropsy is the result; whilst in others, in a more southern latitude, by the increase of the malaria, and the changes in temperature, we have those violent attacks of yellow and congestive fevers. As it has been shown that the capillary vessels and nervous terminations are so intimately connected, it will be seen that whatever deranges the one, will simultaneously derange the other. This fact is abundantly exemplified in cases



of fright, or cold water suddenly douched upon the lower extremities; each acting upon the bowels through contiguous sympathies; and also, in abrasions of the surface produced by the explosion of steam, from the shock of which we find symptoms of compression of the brain. Hence I infer, that in proportion as the qualities of the poison are obnoxious to those sentinels of life posted internally and externally, so is the shock to the system, inducing the overthrow of the functions of the entire economy. These terminating extremes of the nerves and capillaries of the circulating systems, may be properly denominated sentinels, to warn us of the gathering clouds of disease, which are first manifested in the change produced upon them; and from their angry appearance, we are induced to furl our sails and prepare for the tempest that is fast approaching. But these are not the only important services of these little sentinels. The evidence of returning health, the effect of the remedial agents, their assistance in ejecting from the system the offending cause, are among the objects that render them worthy the closest attention of the profession. If we examine the action of the economy under the influence of tartar emetic, we find that as soon as the agent is brought in contact with these guardian vessels, the physiological laws of the parts are increased by the stimulant applied to the vessels and nerves, which enables nature to free herself, either by ejecting from the stomach, or hurrying through the alimentary canal, the cause of the difficulty. This speedy response of nature will not admit of the belief in the absorption of the antimony into the general circulation before its effect is produced, but

by the impression it makes upon those vessels, establishes exalted action, and thereby frees the system from the offending cause: so it may be safely inferred that some morbid agents are too powerful in their action to admit of absorption; but perhaps if diluted, or of a less offensive quality, they may be absorbed to the extent as before stated, and when thus far taken into the circulation, may establish fever from irritation or congestion.

“Any cause,” says Professor Wood, “capable of inducing irritation in any considerable number of the organs, or over any considerable portion of the body, either by direct impression or by the reaction which follows depression, or by the super-excitement in certain parts resulting from depression in others, may occasion universal derangement, and consequently fever.” Professor Eberle says, “The causes of fever are generally divided by pathologists into *two* varieties, the predisposing and the exciting. They are all those external and internal causes which tend to lessen the power of vital resistance to the influence of morbid agents. The latter are those causes which excite actual disease by the deleterious or irritating impressions which they make on the animal system. There exists, however, no absolute difference in the nature or character of these two varieties of morbid causes. The same agent or circumstances may manifest its influence on the animal economy either as a *predisposing* or exciting cause of fever, according to the degree of intensity with which it acts, or the *previous condition of the system*.”

Hence it is admitted that in proportion to the force of the cause applied to the system, so is the response

either for weal or for woe ; and we find that it is the received opinion that any cause predisposing in one, may be an exciting cause to morbid action in another. Of most of the causes assigned by the writers, we know but little except from the localities where the malaria is found to prevail. We suppose them a deleterious something conveyed in the atmosphere, and generated by the influence of heat and moisture upon animal and vegetable matter. But it has been admitted that a cause with sufficient force to excite a morbid action by direct application or absorption, has, in like manner, the power to impair the animal functions, and to predispose one and excite another, and vice versa.

This being clear, it will be seen *that the tendency of the viscera and fluids to gravitate*, with the altered respiratory movements, are fruitful predisposing and exciting causes of febrile action ; hence the attacks of fever do not all commence with diminished secretion of the skin and alimentary canal, though the cause may be the same ; which is owing to the intensity of the cause, and the amount of irritation or congestion of the capillary vessels, as was manifest in the two orders of attack of that frightful malady, the cholera. The force of the first was expended upon the extremes of the capillary vessels and nerves. In the second, the force was thrown upon the brain, which weakened the action of the heart, and produced semi-stagnation in the capillary vessels. In the former, the nervous twitchings and spasmodic cramps, with profuse perspiration, were present from the commencement to the close : in the latter, we had also profuse perspiration, or an effusion upon the external skin and internal mucous membranes, frequently

terminating fatally, without spasms. In some cases, both sets of symptoms appeared to be moving conjointly. So I infer, in many cases of fever, owing to the deranged condition of the nerves and engorged capillary vessels, that the irritation produces an exalted action in some cases, constituting diarrhœa; and in others, a suppression of the secretions, which not unfrequently establishes inflammation in the sequel of the disease.

Diarrhœa in fever is not unfrequently an effort of nature to free herself from the effects of the offending cause, and should be carefully watched in its tendency, and rarely checked unless the parts indicate high irritation, or tenderness and pain upon pressure. By imprudently checking diarrhœa, produced from a simple catarrh, it may be changed into gastro-enteritis, or increase morbid vascular action, which often terminates in inflammation. The characteristics of fever are evidently dependent upon the change produced in the capillary vessels and nerves that are essentially and primarily disordered. The first manifestation is suppressed or exalted action of the secretory vessels that are dependent upon the extreme terminations of the capillaries. In like manner, the first mark of convalescence is manifested in the terminating branches of the two tegumentary systems by the change in the secretions. But whether the nerves are the first or the second link in the chain of morbid action, it has not been ascertained; and it would be of little consequence, in a practical point, if it were; as the relations of the two systems are so blended, that whatever disturbs the extremes of one, deranges the other; and, in like manner, whatever

changes the quality of the blood, impairs the brain in its healthful functions, and entails a similar depression or exalted action upon the heart and arteries. So it seems that the extremes of these two systems and centres reciprocate in health and in disease.

These systems are, therefore, the seat of primary irritation, whether it be from debility or congestion, from which arises morbid vascular action. Hence the opinion of some of the writers, that fever is a universal malady; but it is obvious that the entire organism could not be in a state of disease; yet the functions may be more or less deranged through the influence of the morbid vascular action established from the derangement in the extremes or centres. The causes, therefore, whether chemical or mechanical, are equally liable to establish fever, and, it seems to me, from the admitted facts that one of the primary causes has been overlooked thus far.

In the laborious research after causes, the liability of the viscera of the abdomen and the fluids to gravitate, with their influence upon the respiratory movements, upon the blood and upon the general system, have been misapprehended by the profession. The anatomy of the organs, and of the surrounding parietes which are endowed by nature with a capacity to perform certain mechanical functions, clearly demonstrates their importance, and, if we look at the liability to local irritation upon the root of the mesentery, established by gravitation, we cannot but ask, what cause is better calculated to predispose or excite fever than the displacement of these organs? Consequently, the direct cause of febrile disease, with a large class



of the diseases to which we are subject, may be traced to such displacement.

In the illustration of this position, we will suppose a case where the individual, by too long standing, becomes fatigued, the muscular system exhausted, and the small intestines having lost their natural support, gravitate to the true pelvic cavity; now what part is put upon the stretch? Is it not the root of the mesentery? and is not this part abundantly supplied with blood-vessels, nerves, glands and secretory vessels? What cause, then, is better calculated to establish a morbid, vascular excitement in the capillary system and nerves? Again, if the first link in the chain of morbid action, is discovered in the nerves, as contended for by some, have we not an irritating impression ready to be conveyed sympathetically to the entire system from a primary focus of irritation? And as it is known that the nervous and vascular systems are so immediately connected in every part of the body, where these two systems are brought into a morbid condition—as they manifestly must be—by the displaced condition of the abdominal viscera, what is better calculated to produce fever than such displacement and weight upon the mesenteric blood-vessels and nerves? It is evident, then, from the symptoms and character of the disease, that fevers depend upon a morbid action, commencing in the capillary vessels and terminating extremities of the nerves, or at their centres, giving rise to an accelerated action of the heart and arteries. Can it then be doubted that the irritation is produced from the weight, so far at least as the capillary system and nerves are concerned, and that the focal point from which the morbid vascular action is established in func-

tional and inflammatory fevers, is the consequence of this deranged condition? Look at the mental and muscular languor—the pains in the loins and lower extremities—the morbid sensibility to low temperature—the irritableness of the system, and the desponding weakness of the intellectual powers, so universal in febrile disease; and ask, is not this unequivocal evidence of the prevailing derangement of the capillary vessels and nerves of the abdomen? Furthermore, look at the influence of the depressed condition of the abdominal contents upon the action of the diaphragm, with the loss of power in the muscles subservient to respiration, and the effects produced upon the blood, which leaves a superabundance of carbonic acid, that is carried to the brain, and produces the train of diseases so fully described by systematic writers from a weakened action of the heart. Then contemplate the effect of the black blood upon the brain and its influence upon the heart, and ask if it is not more than probable, that the cause of fever is connected with local irritation at the root of the mesentery, and with the obstructed blood-vessels, and the consequent congestion of the capillaries from obstruction, and the tendency of the fluids to gravitate?

From the history of the causes of febrile disease and their effect upon the animal economy, with the power of the organs to resist the surrounding causes so long as the general harmony is preserved; and with the symptoms of diminished or increased action of the exhalents and secretory organs which terminate upon the internal and external surface, it is evident that the febrile agents uniformly derange the functions of the two systems by establishing an accelerated morbid

action, or a diminished action, amounting to the same morbid results. In the former, the disease is called into action by an agent of sufficient power to derange the action of the two systems, giving rise to violent reaction, frequently of a malignant character. In the latter order of attacks, the system is exhausted in struggling with a distinct cause, or fixed point of irritation, until vital resistance is overcome, and morbid action established—constituting the grade of fever, called typhus, or typhoid as it is observed in the initial state. In the premonitory stages, we have various symptoms, such as loss of appetite, a furred or smooth tongue, disturbed sleep, with a harsh dry skin, irregular bowels, with lassitude, pains in the bones and extremities, slight headache, feelings of heat and cold, with many anomalous symptoms. By examining the symptoms as presented by the patient, it will be found, that the altered condition of the secretory system, with the morbid sensibilities that are manifest, and the derangement of the digestive organs, heart and arteries, have been produced from an impression made upon the vascular or nervous system; whilst in some, perhaps from the same cause, the nervous symptoms take the lead of vascular action, and in others, the two systems are simultaneously deranged; which brings on nervous and vascular action conjointly; thus making the compound order of fever referred to, by the writers. But of the symptoms referred to, no one is so uniform as the diminished or exalted actions observable in the emunctories, which establishes the fact that the two systems, at their extremes or centres, are invariably the first deranged, and the first to show the returning signs of health. By these convictions my practice for twenty

years has been governed, and has resulted in treating almost every grade of fever with more than usual success. After a conviction of the truth of the theory, my practice was simplified from the diagnosis being easily made out by the altered condition of the secretions of the two tegumentary systems, which freed me from the hap-hazard practice so frequently met with. To be skilled in diagnosis requires close and persevering observation, aided by a correct knowledge of anatomy, physiology, and the symptoms arising from the pathological condition of the organism, taken in connection with the age, temperament, climate, habits, hereditary predisposition, and character of the predisposing or exciting cause.

Having thus given a brief outline, of cause and effect, I now proceed to the doctrines in relation to the character of febrile disease.

- I. Fever is a disease arising from a general derangement of the secretory and nervous functions, produced by local impressions made upon the circulating and nervous systems, which establish morbid vascular action.
- II. The first part impressed by the febrile agent, is that of the capillaries in some, and the nerves in others, or the two conjointly, either of which affect the other simultaneously.
- III. The morbid vascular action may be established by a depressed or accelerated movement of the two systems, from direct irritation applied either chemically or mechanically.
- IV. The morbid causes act upon the two extremes or centres through the external or internal sur-

face, and are conveyed to the entire system by a morbid molecular action, which extends to the entire system, through the capillary vessels, or sympathetically by the nerves.

- V. The remote and exciting cause of fever is liable to produce congestion, irritation or inflammation.
- VI. Loss of balance between the capillary terminations upon the two tegumentary systems, by local determinations of the blood, is one of the strongest characteristics of fever, which is manifest in the initial stages by the altered functions manifested by chilly sensations and changes in the secretions.
- VII. Morbific agents are not permitted to enter the general circulating mass of the fluids until the vital force is overcome, further than the vessels that convey the limpid fluid, and they are frequently rejected by nature at one of the provisional outlets.

Having thus given a summary of the observations collected from medical authors, clinical pursuits, and post-mortem examinations, in relation to the causes and effects of febrile disease, with my convictions as to the part of the system first impressed, and the universal symptom, observable in all, of the altered condition of the secretions of the two tegumentary systems, I propose some further remarks on the causes and effects of intermittent, remittent, typhus, typhoid and exanthematous fevers, in illustration of my views in relation to their treatment.

The intermittent paroxysm that occurs every day or every other day, generally yields to the treatment



that is calculated to maintain the balance of the capillary vessels of the internal and external tegumentary systems ;—we find the paroxysms are depending upon the periodical congestion of the internal, and a deficiency of the external capillary vessels—until the febrile vascular action restores the balance in the two surfaces, and enables the system to free itself by means of the secretions. To the remedies employed by the profession, this form of the disease generally yields in three or four days, and not unfrequently in less time if the patient attend to his diet, and wear flannel next to the skin. In the mild form of bilious remitting fever, the symptoms and treatment are very much the same as intermittent. But as the remittent type, in marshy districts, assumes a formidable character, it requires a treatment corresponding to its violence, and perhaps there is no form of fever so various in relation to its grade, or danger in different districts or latitudes, as the remittent type. This and its fellow, the intermittent type, are dependent upon like causes, and differ in proportion to the irritability of the system, local seat, and determination of the blood upon the internal organs, with the complications of inflammation and congestion. If the attack be sudden or vehement, it is alike dangerous in its progress. Owing to its morbid influence, the local seats of remittent fever are more various, and the organs of the three cavities are subject to its influence ; but generally those of the abdomen, the liver, and alimentary canal, are found to be most subject to its attack. The causes are uniformly referred to miasmata, and their identity is evident from the fact that intermittent becomes remittent, and vice versa ; all writers speak of either as a

mild form of febrile disease, and readily controlled by appropriate remedies. But notwithstanding the success attending the best directed course, is it not probable, from the many failures in the treatment of the violent forms, that there is a misapprehension as to their causes and effects? If not, why should the skill of the physician, and their remedial agents fail in the cure? The various departures from health in a true intermittent, are called the cold, the hot, and the sweating stages; these three stages are characteristic of the disease, and are the effects produced by the cause or causes. From the symptoms in the cold stage, it is manifest that the internal capillary vessels are congested, whilst the external are left with a proportionate deficiency, which is obvious from the cold, pale and contracted condition of the surface. Then, is not this chill, &c. the consequence of the want of balance between the internal and external capillaries? and the change produced upon the nerves externally, the consequence of a deficiency in the vital fluid, and upon the nerves internally, of a superabundance? The functions on the one hand being diminished while on the other they are morbidly exalted. Is not this view in accordance with the anatomical arrangement of the two tegumentary systems—with the capillary vessels and nerves terminating upon the internal and external tunic, and with their reciprocal and physiological functions? In all diseases we find irritation, congestion, or inflammation, in proportion to the loss of balance in the two surfaces, producing a chill. The approach is first discoverable at the extremities, by the blue appearance under the roots of the nails, which is soon followed by yawning and stretching, with a

sensation of cold, alternating with flushes of heat, until the cold becomes predominant throughout the system. After which a spasmodic action prevails until the reaction gradually forces the heat from the centre to the surface; and after the occurrence of the hot and cold stages, the two capillary surfaces are balanced, the secretion internally and externally augmented, leaving the patient for twenty-four or thirty-six hours, apparently without disease. Thus it is evident that the chill is the consequence of periodical congestion, and also the hot and sweating stages, which are an effort of nature to restore the loss of balance between the surfaces, and free herself from the irritating cause.

From the symptoms attending these two diseases it is clear that the remittent and intermittent forms of fever differ in the congestion of their capillary surfaces.—In simple intermittent, the periodical congestion is upon the capillaries of the liver, stomach, and bowels; in the remittent form, of a vehement character, the congestion from the first chill, is to a greater or less extent, located in the capillary vessels throughout the system; the internal organs of the abdomen being the primary point, the cutaneous capillaries the second, the lungs the third, and the brain the fourth: but in the winter season the lungs are frequently the primary point, in some of the winter epidemics. This fact, from examination before and after death, was discovered by Dr. Martin and myself in 1821. The left lobe of the lungs was found to be so fully congested as to give the entire organ a dark grumous appearance. The epidemic that then prevailed was so violent in its character as to extinguish life in six, twelve, and twenty-four hours, and in

many families, induced the belief that poison had been secretly administered. Under these impressions the examinations were made, and the true character of the disease discovered. In the endemic of 1823, the organs of the abdomen were the seat of congestion. In the summers of 1838 and '39, the liver was the organ primarily congested; in 1847, the congestion was on the bowels and liver, as was ascertained by Dr. Walker and myself. These cases demonstrated that inflammation, in some, existed in the small intestines and stomach; in others, on the large intestines; and occasionally, on the liver and duodenum. This epidemic was treated by many for typhoid fever, and, of course, to the prejudice of the afflicted. Its character, however, owing to the irregular congestions and terminations, established it as a remittent fever in an aggravated form. In some, the initial stage of the inflammation induced the treatment for typhoid or typhus fever; in others, where the congestion was nearly equal upon the tegumentary systems, for continued fever. The nervous symptoms in this fever are in proportion to the local inflammation of the intestines. If the inflammation be on the lower third of the ileum, the symptoms will be found as described by writers on typhoid fever. If on the jejunum, the symptoms are as found under the head of typhus; and when on the duodenum, they come under the order of yellow, or a high grade of remittent fever, as in these forms the stomach and liver are more or less affected.

In addition to what has been stated on the causes of intermittent and remittent fevers, in their epidemic or endemic forms, produced from malaria, there are a variety of other causes; such as worms in children, irri-

tating substances lodged in the bowels, the depressed condition of the abdominal viscera, gravitation of the fluids, and whatever may cause sufficient irritation to destroy the balance of the circulation in the capillary vessels and derange the nervous system. But the remittent fevers produced from the latter causes are less dangerous than those from malaria.—In all forms, be the cause what it may, the impression is made on the two surfaces at those extremes which determine the consequence upon the viscera of the abdomen, and especially upon the mucous coat of the alimentary canal and liver; and by the reciprocal action between the internal and external surfaces, their functions are deranged, producing the vascular action by which the entire functions of the economy are alike disturbed.

The Eruptive contagious fevers of the order of exanthemata, are of two distinctive forms, which in the valuable work of Dr. Eberle are properly set forth. He says, “The two distinctive forms may be divided into two varieties, viz.—1st, Those which consist of a palpable matter or virus; and, 2d, Those which consist of an imperceptible effluvium. The chronic contagious maladies are propagated exclusively by a palpable virus, and consequently always by actual contact. Those acute contagious diseases which are not attended by a specific local affection, or an exanthema, are, on the other hand, exclusively propagated by a morbid contagious effluvium, and, by consequence, solely through the medium of the atmosphere. Those acute diseases which are essentially connected with a specific local affection, or an exanthema, are communicated both by a palpable virus and by an impercepti-



ble effluvium, and consequently both by actual contact and through the medium of the atmosphere.

“ We perceive therefore, that of the extremes of a purely local and purely *general* malady, there is on the one hand communication of the disease solely by a palpable matter; and on the other effluvia only, and that where the local and the general affections meet in the same disease, as essential concomitants (in the exanthemata) the two modes of propagation, also obtain.” But he observes that, “ in reality an actual contact must necessarily always occur between the contagion and the individual before it can possibly produce disease, whether the contagion be a palpable matter or an imperceptible miasm. The only material difference consists in the mode in which this contact is effected.

“ One of the most remarkable peculiarities of contagious diseases is their inherent and undeviating tendency to preserve their essential individuality, under whatever circumstances of age, sex, constitution, temperament, modes of living, climate, and place they may occur. Thus, the smallpox of the present day differs in no essential circumstance from that of the time of its discovery.—The laws of the acute contagious diseases differ entirely from those which govern the rise, progress, and declension of the chronic contagious affections. The former observes the utmost regularity in all these respects. The rise, advancement, and decline, in short, the whole series of essential phenomena, are governed by laws as steadfast as those which regulate the motions of the planets. The latter class of diseases, on the contrary, are extremely irregular in their course,

having no definite period of duration, established order, and duration of the successive phenomena of their course."

Having thus established the character of these contagious diseases, I next proceed with the cause and effect, and the specific seat of the acute form, as set forth in the quotation. By a reference to any of the authors on smallpox, it will be found from the symptoms, that the capillary vessels and nerves of the two tegumentary systems are the surfaces upon which these exanthematous diseases are seated; and we find also that the symptoms correspond with those of fever of the remittent and continued type similarly located. Hence the sensations of the patient are, lassitude, aching pains in the back and extremities, with slight creeping chills, flushes of heat, pain in the head, nausea, thirst, and tenderness and pain in the epigastrium; and after the heat is equalized, the skin becomes dry, the tongue white, and in short, all the secretions are suppressed to a greater or less extent; till, by the efforts of nature to restore the loss of balance (which is generally from three to four days) the secretions, to a certain extent, are re-established, and the eruption makes its appearance. During this stage, and after the appearance of the eruption upon the head and face, the patient is drowsy, and sometimes comatose. The eruption progresses from the head to the body and extremities. As soon as it covers the surface the eruptive fever remits in proportion to the extent of the eruption. If distinct, the fever intermits; but if confluent, the intermission is not so decided; about the sixth or eighth day, as suppuration advances, a slight sensation of chill is complained of, with an increase of fever, and

the head and face begin to swell, which again subsides in two or three days; this symptom extends slightly over the body, and largely over the extremities. During the progress of the suppurative process, the internal tegumentary system labors to maintain the balance with the external by establishing an exalted action in the secretory vessels, which is manifested in the increased secretions of viscid saliva.—The secondary fever is always in proportion to the extent of suppurative action, and is dependent upon the loss of balance between the two surfaces. By the extensive suppuration of the external surface, it becomes the primary point of irritation, and hence the afflux of blood to this surface.

From the source and effect of these diseases it is evident that in all forms of fever, including exanthemata, be the cause what it may, the first impression is made upon the two systems, as before stated; and we find that the fever of this specific disease, from a specific cause, clearly proves its uniform specific effect upon the two tegumentary systems from the time of its incubation to its close.

My solicitude to establish these two systems and surfaces as being invariably the parts first impressed, or shocked, by the cause of all acute, and the greater number of chronic diseases, is because of the many advantages which, in a practical point, may be gained in the treatment. And let it be understood, that a chilly sensation bespeaks a loss of balance between the two surfaces; and whether from irritation, congestion, or inflammation, it should be restored if we expect to gain a favorable termination: for by observing the morbid vascular action as manifested upon these two surfaces,

we are enabled to judge of the amount of blood circulating upon the internal organs from the temperature of the external surface, or arising from either irritation, inflammation, or congestion; this is of the greatest consequence to the medical attendant. It also enables him to determine the nature of all our fatal epidemics or endemics, and the force of their congestive or inflammatory character; to see the importance of which, we have but to look at the many absurd theories that have sprung up since the entrance of the Asiatic cholera into Europe and America, which was evidently one of the most fatal congestions of the two surfaces in question.

If these views be correct, and the experience of many years teaches me that they are, the system will admit of a bold, safe, and decisive practice; and will call into use some potent old remedies which, unfortunately for the sufferers, have been omitted, in consequence of the vacillating opinions on the nature of disease. The limits of this essay will not admit of a full description of the various indications requisite in the treatment of fever. I therefore shall confine my remarks to such as will illustrate the additional agents that I have found valuable adjuncts in the treatment of the various types.

#### GENERAL INDICATIONS AND THERAPEUTICS.

- I. The cause should be removed if possible, and the febrile reaction moderated by the lance, cold water, and the removal of the vitiated secretions from the stomach and bowels, by emetics and cathartics.
- II. The gastro-intestinal irritation may be checked,

by correcting the secretions of the organs of digestion.

- III. The circulation of the two tegumentary systems should be maintained as nearly balanced as possible, by cold sponging, or by enveloping the body in a wet sheet from five to fifteen minutes, in proportion to the morbid heat on the external surface; and where the internal capillaries are engorged, and the febrile heat confined to those parts, mild nauseants, with a warm wet sheet wrapped around the body, and rubefacients or dry warm applications to the extremities, renewed every hour, will soon balance the circulation between the two surfaces, if the secretions be corrected by the use of alteratives. If the fever arises from congestion, counter-irritants, friction, stimulants, revulsives, bandages, and dry cups, of small size, to put the fluids in motion, are indicated.
- IV. Where the cause is not known, the effects, as observed in their morbid movements on the capillary vessels and nerves, should be corrected; if the loss of balance be the result of inflammation, as in typhus or typhoid fever, the indications will be filled by the use of such remedies as are best calculated to divert the circulation from the parts inflamed, and establish the secretions.
- V. In specific disease, such as the acute form of the exanthemata, as classed by Doctor Eberle, the cause, after having produced its effects, cannot be removed until exhausted by passing through its specific course. Hence the indication will



be varied agreeably to local determinations. If the determination be to the brain, viscera of the chest or abdomen establishing inflammation, the remedies usually recommended without regard to the specific disease, will answer the purpose. But in these specific diseases, the external tegumentary system, during the suppurative process is liable to become the local seat of inflammation or high irritation, which requires a special treatment, such as sponging the body with cold or warm water, to abate the irritation, and equalize the excitement, with mild aperients; and if the internal fever be too high to establish or bring the eruption to the surface; the inflammatory action and congestion may require the assistance of the warm bath and nauseating remedies to determine the fluids to the surface.

- VI. In intermittent fever, the indications are to be met, by clearing out the *prima via*, and preventing the periodical loss of balance between the internal and external capillaries; which may be accomplished by wearing flannel next to the body, and the use of quinine, opium, and such remedies as are usually applied.
- VII. In remittent fever, the use of cold water is more frequently indicated than any other remedy. It may be applied either by sponging or enveloping the body in wet cloths, from five to thirty minutes at a time; or in proportion to the intensity of the morbid heat. After this the patient should be placed in a dry bed, which will invariably establish diaphoresis, and not unfrequently change the remittent to the intermit-

tent type. This remedy is safe, and more efficient than any other of the remedial agents when the signs for a resort to the cold water are manifested. When the chilly sensations are alternating, and when the loss of balance between the two capillary surfaces, is evident, its use would be counter-indicated; but when the morbid heat is high on the external surface with alternating chills, which is *prima facie* evidence, that the excess of fluids is contained in the external capillaries, the use of cold water may be resorted to with advantage. But should the internal organs contain the excess of the fluids, revulsives, counter-irritants and the warm wet cloths will be required; as it will be seen, that when the loss of balance between the two surfaces is complete, it constitutes an *ague*; but if the periodical congestion becomes confirmed upon the internal organs, we have a violent chill followed by a continued form of fever, which may be subdued by the influence of cold water, and the form of the fever changed to an *intermittent* type. But should the congestion be confirmed to a greater or less degree upon the organs of the three cavities and the external capillaries, the remedies to meet such alarming condition, are to be found in the agents that are best calculated to produce reaction of the system, and put the circulating fluid in motion; which, in some constitutions, may be effected by small dry cups, applied on various parts of the body and extremities, and with gentle friction, assisted by cathartics, in order to

produce reaction ; but in others, it will require the use of a roller, applied to the extremities, (so as to force a movement of the fluids in the superficial blood-vessels,) assisted by friction, blood-letting and warm brandy toddy, to re-establish the circulation. In some of the severe forms of congestion, where the arteries are not contracted, a sudden douche of cold water, when the patient is not expecting it, is an admirable reactive agent. But if the pulse has become thready, this treatment is contra-indicated.

VIII. In irritative, continued, typhus or typhoid fever, cold water is indicated to a greater or less extent. In its application, the same rules, as in the remittent form, are to be observed.

IX. In the treatment of all forms of fever, where the mucous coat of the bowels becomes the seat of inflammation with or without diarrhœa, the roller should be used with the pledgets as directed in the essay on mechanical agents, to moderate the peristaltic movements, and to prevent tympanitis from the gravitation of the bowels whilst over the close stool. On returning to bed, the patient should always lie on his right side for a few minutes, with his hips elevated, to restore the bowels to the abdominal cavity.

X. In cases of confirmed congestion, in the commencement, or during the progress of the disease, with the heat of the extremities below the standard of health, the bandage and cups should be used as directed in cholera.

- XI. During the progress of fever, when it arises from the inflammation of the organs of the chest, cold water is counter-indicated.

In these brief and partial outlines of therapeutic and general indications, I have not thought it necessary to enumerate the remedies in daily use, and which are understood by the profession. To have done myself justice, my remarks in many places should have been extended, and my principles more fully demonstrated; but health forbids, and as there is sufficient in the several essays to determine the correctness of the position, I must leave to the investigating mind, or to the future, the further illustrations of so important a subject.

## DISPLACEMENT OF THE WOMB.

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THE displacement of this organ, under the variety of forms to which it is liable, with constipation of the bowels and its consequences, has been, and still continues to be, the bane and scourge of the female sex. The womb being situated between two cavities, with only the round and broad ligaments, septa, and the relative cellular attachments to sustain it, the frequency of the displacements is hardly to be wondered at: but when we look at the viscera of the abdomen, ready at all times when the axis of the body is changed, to press upon the fundus uteri—and the smooth curved plain ever ready to receive it in its descent—at the portion loosely attached to the vaginal membrane, the rectum, and the bladder, we can have no doubt as to the cause of the disorder, and the necessity of directing the best energies of the profession to its cure. The doctrine that has crept into the minds of some of the profession, both in Europe and America, that the vaginal membrane supports the womb, and that the efforts for its cure must be directed to that tissue, is so absurd, and so directly opposed to what is proved by the anatomical arrangement, that argument



would seem hardly necessary to refute it. It is believed, and the position is acted upon by gentlemen who have attained some character in the profession, that anatomy demonstrates most clearly that the support of the organ depends upon the peritoneal attachments and its connexion with other organs. But let us look at facts instead of theories.

This organ is situated between the abdominal and pelvic cavities, sustained by its ligaments, and supported in its erect position by two septa between it and the bladder anteriorly, and between it and the rectum posteriorly; either of which when relaxed will allow the womb to become displaced; and as one or the other is often stretched, they are a frequent source of displacement and derangement of the functions of that important organ. Cold is, perhaps, the most frequent exciting cause of uterine disease. The womb being debilitated by displacement is less capable of resisting the shock produced by cold, which rarely excites a disposition to disease.

The predisposing causes of the disease of the uterus and its appendages to be named hereafter, are as follows, viz.: gravitation of the bowels from sedentary habits, constipation, diseases of the rectum, overdistension of the bladder, mechanical injury, overreaching, too frequent child-bearing, sudden concussion upon the abdomen, tight lacing above the umbilicus; and heavy lifting.

These causes, although many, are the consequence of other causes; yet gravitation of the bowels, constipation, and disease of the rectum, may be considered as the principal antecedent causes of prolapsus uteri, while retroversion, anteversion, dysmenorrhœa, hys-

teria, fluor albus, chronic enlargements, and neuralgia, are all referrible to the above-mentioned conditions as their antecedent causes. Many organic diseases derive their origin from the same sources, and in clinical practice, there is no class of diseases more frequently met with than those above enumerated. The organ is subject to depression in a direct line, or by an inclination of its fundus, most frequently backward, and toward the left side; though sometimes in a different direction.

The symptoms of prolapsus vary according to the descent and direction of the fundus, and the antecedent causes of the displacement. If the small intestines rest equally on the lateral ligaments, a sense of fulness and bearing down weight, with pain and weakness of the back and loins, are complained of. If the sigmoid flexure be the cause, the patient will frequently complain of pain in the left side, and a sense of fulness in the rectum, with obstinate constipation. And when the loaded condition of the rectum is the cause, symptoms simulating those of gravel ensue. Most frequently displacement of the womb is neglected until the bladder, rectum, and vaginal membrane are affected, before the physician is consulted, when a combination of symptoms occur; such as a sense of weakness and pain in the back, with dragging or bearing down sensations, as if something was about to pass, with frequent leucorrhœal discharge, and sometimes stranguery. Where the fundus of the uterus rests upon the rectum it very much increases the violence of the bearing down pains, producing a sense of fulness and pain in the abdomen. In such a case, the fundus is found below the promontory of the sacrum, with the

os uteri resting under the symphysis pubis. This form of displacement is most frequently met with in pregnancy, yet it is found in the unimpregnated state also, though rarely.

The constitutional symptoms attendant on these displacements, are necessarily various. In some, the general health suffers periodically, whilst in others, the strength is reduced and the variable symptoms of dyspepsia and hysteria are prominent. The nervous connection is so intimate between the organs of the pelvis and the abdomen, that the symptoms frequently invade the entire system. At other times the heart apparently receives the shock; and thus all the organs in the three cavities are liable to morbid nervous derangement from the same source—displacement of the womb resulting from the diseases of the rectum, bladder, and vaginal membrane. Hence, where the female has lost, or is about to lose her health, the first thing to determine is, the real condition of the organs of the pelvis; since the symptoms arising from disease either of the womb, rectum or bladder are present when one or all of these affections exist. I have met with cases where one or two small fleshy tumors in the rectum, within the action of the levator ani muscle, had been treated for disease of the liver or heart. Again, I have found all the symptoms of displaced uterus arising from over-distension of the rectum and engorgement of the blood-vessels. When, therefore, the organs of the pelvis are believed to be the seat of disease, I direct the patient, lying on her right side, to elevate her hips, when the symptoms will disappear if the disease be prolapsus or procidentia, produced by the weight of the superincumbent viscera. But if the

prolapsus be produced by disease of the rectum, the relief will be but partial, and will return as soon as the erect position is resumed. When the disease is complicated, examination by the touch is necessary to determine its true character.

The weight of the abdominal viscera sometimes produces what is called anteflexion or retroflexion of the fundus of the womb, while the os uteri rests against the curved plain of the vagina. These flexions produce an angle in the cervix uteri which is a fruitful source of dysmenorrhœa, sterility and chronic thickening of the tissues of the organ. To enable the reader to comprehend my views in relation to the several diseases connected with the subject, and to show that the cause and effect are in conformity with the anatomical arrangement of the pelvic organs, I lay down the following propositions, viz :

- I. The womb is suspended between the upper boundary of the true pelvic cavity, and the lower boundary of the abdomen, and between the rectum and bladder, by the duplicatory attachments of the peritoneum and two septa, which are its natural support.
- II. The vaginal membrane is attached to the lower boundary of the womb, peritoneum, and the urethra under the symphysis pubis, and were it not for these attachments the slightest debility would bring on prolapsus of the vaginal membrane as frequently as the inner tunic of the rectum is prolapsed.
- III. The vagina alone is incapable of affording any

support to the womb in its primitive attitude, or of resisting its descent.

IV. As long as the ligaments and septa maintain their energy, there can be no misplacement of the womb, unless by violence.

V. Prolapsus uteri, procidentia, retroflexion and ante-flexion rarely result from disease of the womb; but from debility, or extension of its ligaments.

VI. The indications here, are to restore the ligaments to their healthy condition, by removing the cause.

#### TREATMENT.

In the treatment of these several diseases originating from a depressed or altered condition of the organ, the following principles should be kept in view. First, no two cases of displacement are in all respects exactly alike, in their antecedent or exciting causes; as their constitution, habits, complications, functional or organic alterations vary. Hence the most simple form of prolapsus, in different constitutions, will require a difference in their treatment. For instance, the treatment differs if it has been the consequence of different causes, as sedentary habits, constipation, disease of the rectum, over distension of the bladder, too frequent child-bearing, leucorrhœal discharge, chronic enlargement of the womb, constitutional disease, mechanical injury, tight lacing, sudden concussions, &c.

The indication in derangement of the womb in one, is to cure the constipation and restore the strength of the ligaments; in a second, to cure the disease of the rectum, and in a third, to support the abdominal viscera, and invigorate the muscular system. For the



sake of illustration, I will suppose a case of each of the most prominent misplacements.

I. *Prolapsus uteri*, produced from sedentary habits, relaxed muscular system and gravitation of the bowels. The remedial agents are partly mechanical, as the disease originates from a failure of the physical functions, and may be successfully met, by placing the patient upon the right side, and elevating the hips with the thighs flexed, and the body inclined forward, which brings the axis of the superior and inferior strait in the same line. This position continued fifteen or twenty minutes will suffice to restore the bowels to the abdominal cavity, and the womb to its natural position, where a suitable supporter will prevent the recurrence of visceral displacement. The description of the instrument, and the mode of applying it, will be given in a subsequent essay. After the application of the supporter, the cure may be completed by aperients, alteratives, cold sponging, or shower bath every morning, with exercise in the open air.

II. *Procidentia*, produced from distension and gravitation of the bowels. The mode of restoring the bowels, and the application of the supporter in this is the same; but in some cases the uterus is so far descended, that the horizontal position is required to be continued for several days, when gentle pressure of the hand will readjust the organ. After which the indications are, to restore the rectum, with the remedies recommended for the treatment of that organ, and apply cold water, or green tea, as a wash for the vagina. The cause of distension of the bowels and rectum in such cases must be removed, and the con-

stitutional symptoms treated by alteratives, tonics, cold sponging, and moderate exercise.

III. *Retroflexion* and *Anteflexion* are the consequences of the superincumbent pressure of the abdominal viscera, and force of the diaphragm, which produce a bend in the neck of the womb. This may be readily removed by the use of the supporter, with alteratives and aperients to restore the functions of the organ.

IV. *Retroversion of the uterus* is a disease most frequently met with in the first months of pregnancy, and is a displacement backwards, with its fundus below the promontory of the sacrum, the os uteri being thrown forward under the symphysis pubis, where it presses upon the urethra, producing strangury, whilst the fundus is resting upon the rectum in its descent along the curve of the sacrum. The symptoms are violent bearing down pains, with a sense of fulness in the passage, and pains in the lower part of the abdomen, which are principally owing to distension of the bladder.

The treatment, after the organ is restored to its natural position, consists in wearing a supporter until the first three months of pregnancy have passed. The patient should frequently void her urine, or have it drawn off, if there be any obstacle, as constipation, distension of the bladder, with the weight of the viscera of the abdomen, which are the chief causes of the difficulty. The best mode of detecting this disease is by an examination of the passages. After the bladder has been emptied, and the organ restored to its proper elevation, the cure is completed with the supporter and aperients.

In the treatment of anteversion I am enabled to present a case that was evidently produced from constipation and a morbid condition of the rectum. During three years, as related by the patient, she had passed from three to eight days without a passage from the bowels. Piles were established, after which the uterus became deranged, and chronic enlargement ensued, especially in the front portion, which was made to rest firmly against the bladder and pubis. The round ligaments appeared to have participated in the chronic affection, as they appeared to be double or treble their natural size. From what I learned from the patient, who was quite intelligent, and from the result of the treatment, I have no doubt the disease was produced by the loaded condition of the rectum and sigmoid flexure of the colon. The former, by its distension, carried the organ forward; whilst the latter, in its impacted condition, descended against the fundus, which evidently established irritation of the uterus, and thereby increased the morbid action. The sigmoid flexure, when over-distended, in its descent was checked by the fundus of the uterus, which was thrown from the sacrum by the impacted rectum, and pressed forward upon the bladder and pubis. This fact was ascertained by repeated examinations. When the lower bowel was loaded, the angle of the sigmoid flexure was found pressing downwards at the promontory of the sacrum like a tumor behind the fundus uteri, which was removed by purgatives and injections. This condition, with the hemorrhoidal tumors, further established the fact, that the disease had been produced by constipation and the descent of the sigmoid flexure of the colon. The sigmoid flexure, in several cases of dys-

menorrhœa attended with constipation, has been found in the same position, or nearly so, resting partly upon the fundus and promontory of the sacrum, giving the organ a weight equal to what it attains in two and a half months of pregnancy. This corroborating evidence, and the success in the treatment, leaves the question in relation to the cause beyond a doubt. The treatment of this case of anteversion was the same as recommended for constipation and disease of the rectum, with a few additional remedies, such as cupping, hip bath, antimony, with a pill of two grains extract conii every night, combined, occasionally, with from three to five grains of blue mass, and the daily use of the saturated tincture of the apocynum cannabinum, to regulate the secretions. This tincture, in all cases of chronic enlargement, or neuralgia of the womb, will be found a valuable remedy. It should be given in doses of from a half to a whole drachm, three times a day, or in the quantity sufficient to regulate the bowels. Where it is given for chronic neuralgia, its powers are enhanced by the tincture of guaiac. in equal parts, given three times a day. For twenty years I have almost exclusively relied upon these two articles in chronic disease, and functional derangement of the womb, such as dysmenorrhœa and its consequences. But its quality and uses are more generally discussed in another essay.

Therefore, with the supporter and the remedial agents herein recommended, in conjunction with the remedies advised by systematic writers, for these diseases, the scourge of the female sex will be under the control of the experienced physician.

For the use of the pessary, and its application when admissible, see the Essay on Mechanical Agents.

The following Essay, which was published in answer to the Theory of Professor Meigs, will further elucidate the subject:—

The DIAPHRAGM, it will be observed, is a complete movable septum, placed between the thoracic and abdominal cavities, and is extremely concave below, and convex above, the lower cavity being occupied by part of the abdominal viscera. This septum converging, as it does, from the circumference of the thorax, is a highly important anatomical structure. On each side of the cordiform tendon the muscular fibres rise so high before they join it, that their horizontal line is level with the anterior end of the fourth rib. Thus it will be observed that its form is nearly circular. It is fleshy at its circumference, and aponeurotic in the middle. Anteriorly, it is attached to the ensiform cartilage; laterally, to the internal surface of the cartilages of the six last ribs; posteriorly, to the transverse processes of the first lumbar vertebra; by its left pillar, to the bodies of the three first vertebræ of the same region, and by its right pillar, to the bodies of the four first. Consequently, the structure of the diaphragm consists, in part, of a three-lobed aponeurosis, termed the *Phrenic Centre*. The upper surface is connected with the pericardium, the mediastinum, and the pleura. Its lower surface, posteriorly, is in contact with the kidneys, the supra-renal capsules, the pancreas, and the duodenum, on the right side, with the liver; and on the left, with the spleen and stomach; in the whole extent of the lower surface, it is covered by the perito-



neum. In the mechanism of respiration, the diaphragm performs a most important office. In coughing, vomiting, laughing and speaking, it is alike a principal agent, and assists in various functions, such as the expulsion of the contents of the intestines, the bladder and the uterus.

The PERITONEUM is the next object in connection with the subject. "This is a thin, delicate, semi-transparent membrane, very extensive and spread out so as to line the cavity of the abdomen, and to give an external covering to the greater number of its viscera. In men it is a complete sack, having no opening in it; but in women, its cavity communicates externally through the fallopian tubes." It has a two-fold use: the first is to cover the viscera and tie them down to the back and sides of the abdomen; the second is, in consequence of covering the viscera, so reflected to the sides of the abdomen that its processes keep the viscera in their proper places, and consequently act as ligaments to the organs contained within the cavities of the abdomen and pelvis. The liver is fastened in its position by the reflection of the peritoneum, as follows:—From the centre of the diaphragm, and extending from the umbilicus backwards, to near the ascending cava, are the falciform, or suspensory ligaments. The round ligament, the right lateral ligament, and the portion of the peritoneum concerned in the union of these, form the coronary ligament, &c.

Thus, it will be seen, that the peritoneum, by its ligaments and reflections, not only *suspends* the liver to the diaphragm, but is so adjusted as to give the necessary attachments to the greater number of the viscera contained within that cavity.

Having thus examined the ligaments and reflections, that sustain the viscera of the abdomen, our attention will be directed to the ligaments and reflections that sustain the organs of the pelvis. The ligaments of the bladder are the urachus, which proceeds from the fundus to the navel, forming a long conical ligament, and on each side of this ligament, are the remains of the umbilical arteries of the fœtus, which are called the round ligaments of the bladder. Besides the above three ligaments, it receives a complete coat from the periotenum, which being attached to the upper and posterior parts, and passing thence to the muscles of the abdomen before, and the uterus behind, forms the anterior ligament.

The uterus is a compressed pyriform body, with a cavity in its centre, and is placed between the bladder and the rectum, with the small bowels above, and the vagina below. Professor W. E. Horner says, "it is maintained in its situation, in the centre of the pelvis, *by the reflections of the peritoneum*, which are called ligaments." The peritoneum, after covering the uterus completely, is reflected anteriorly upon the bladder, and at each side of this, is a reflection of the membrane denominated the anterior ligament, which goes to the urinary organ. The peritoneum in passing from the back part of the uterus to the vagina, and rectum, has on each side of the reflection, a duplicature, which constitutes the posterior ligament. It is also reflected from the whole length of each side of the uterus, to the corresponding part of the cavity of the pelvis. These reflections are the lateral, or broad ligaments, which, with the uterus, form a transverse septum in the middle of the pelvis. Besides the ligaments mentioned, the

uterus has two others, one on each side, called the round ligaments. They arise from the sides of its body, between the duplicatures of the broad ligaments, and pass under the peritoneum, to the abdominal ring, through which they pass, and are lost upon the fat of the mons-veneris and the labia-majora. They are of a fibrous structure, and contain many blood-vessels.

Having finished the anatomical arrangements of the diaphragm and peritoneum, in connection with the viscera of the abdomen and pelvis, I will now proceed, 2dly, To present what I consider as the results of such an organization.

The form of the diaphragm, which is a conical arch, and made up from suitable origins, was designed to have great strength for the performance of its functions in the healthy state. Every time we draw our breath, it contracts, and changing its vaulted form to that of a plane, it enlarges the capacity of the chest, so as to permit the dilatation of the lungs. At the same time it forces the viscera which are loosely attached, downwards, and the muscles of the abdomen outwards, and is, consequently, the principal muscle of inspiration; on the other hand, when it relaxes, the abdominal muscles press their viscera upward, the diaphragm is forced up into the thorax, made to compress the lungs, and thus to contribute to expiration. These movements are anatomical and physiological; and, in examining the causes which produce debility of the muscles of the abdomen, or alteration of the peritoneum, at its processes or ligaments, we may inquire what it is that prevents the bowels from descending into the lower portion of the abdomen or cavity of the pelvis?

What barrier has the pelvic viscera against the encroachment of the viscera of the abdomen? This question I proceed to answer. The anatomy of the parts shows that the line passing around the pelvis, on a level with the promontory of the sacrum, is the narrowest point in the pelvis. The *psoas magnus*, the *iliacus*, and *obturator internus*, passing over, and part of them having their origin within the pelvis, assist in narrowing this boundary still further. Hence it is seen, that by this part of the bony and fibrous structure, with the admirable arrangement of the peritoneum, in giving a coat to the uterus, and by the broad ligaments attaching it to the walls of the cavity, there is formed another arch, or floor, below as an antagonist to the diaphragm above.

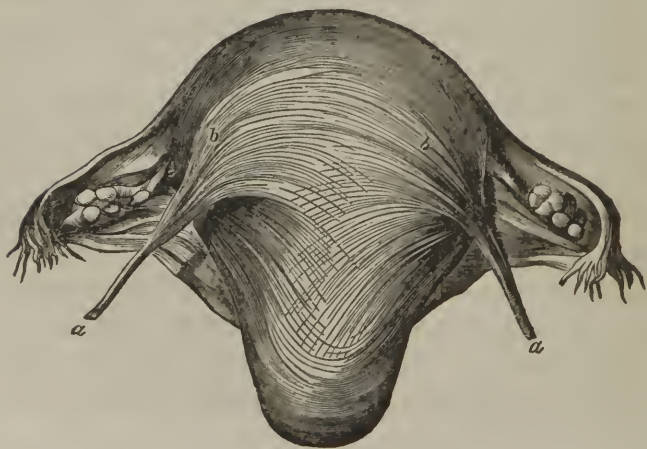
The round ligaments being of the same fibrous structure as the uterus, about the size of a goose-quill, proceeding from the sides of that organ, and passing out through the abdominal ring, to be inserted into the *mons veneris* and *labia majora*, are governed by the same physiological laws as the uterus itself. Whilst the uterus is in its unimpregnated state, these ligaments have but little influence, but as soon as that organ is impregnated, and commences its growth and ascension, we find them increased by nutrition, both in tension and in length, and thus enabled, during the ascent of the uterus, to maintain it in contact with the anterior walls of the abdomen. Thus, as soon as the term of gestation is completed, these ligaments and the uterus contract upon themselves, until each is reduced to their primitive condition. They are also the support which prevents the weight of the uterus,

with its contents, (by maintaining it in its proper position,) from deranging the organs of digestion.

But a recent writer on Retroversion, in sundry letters to his pupils, says: "It is a diseased or debilitated state of the round ligaments that gives rise to the disorder." "The cure," he continues, "consists in the restoration of the health and tone of these ligaments."

The scalpel, however, with the analysis of the tissues, and observations of the various writers on anatomy, show that this hypothesis is not sustained, and that the author has entirely misapprehended that it is the reflection of the peritoneum, including the ligamenta rotunda, that prevents retroversion, and not the round ligaments alone.

The following cut of the uterus with its peritoneal coat removed, presents the muscular fibres, marked *b b* on the external surface of the uterus, terminating in the round ligaments marked *a a*. This drawing fairly demonstrates the character of these ligaments and the offices they are intended to perform.





Blundel says, "The round ligaments, two in number, originate from the superior lateral parts of the uterus. They run into the doublings of the broad ligaments, and, rising to the brim of the pelvis, pass over it, through the abdominal ring, and lose themselves, as it were, in the mons veneris and the groins. They are composed of arteries, veins, lymphatics, nerves, and fibrous structure united together by cellular membrane. Though small in the unimpregnated state, they become developed by gestation, lengthen, spread, and are more vascular."

The author of *Females and their Diseases* is likewise frightened at the "remedial agent called a Supporter," and not in the language, but in imitation of Hamlet, calls upon his students to look upon "the grim and ghastly representative of our poor mortality," and to follow him through the denunciations he has "extracted from his brain" to expose the indiscretions of his brother professors. "Don't you see," he exclaims, "that if you draw a line from the pubis to the xiphoid cartilage, it will represent the linea alba of the *grim horror*? Look again and observe the place where the mesentery was attached, and the root of the meso-colon too?" Yes, my young friends, look again and again, and examine for yourselves the linea alba, made up from the tendons of the muscles and fasciæ of the abdomen. Look at the origin and insertions of the two obliqui externi, the two obliqui interni, the two transversales, the rectus abdominis, the two pyramidales, and the serratus magnus, and make yourselves familiar with their several offices. Look and admire how wonderfully they assist respiration, sustain and compress the viscera of the abdomen, and *antagonize* the force of the diaphragm.

Look also at the uterus, and contemplate the relative parts placed there by the God of nature for its support. These attentions and practical observations will tell you that where the muscles become debilitated by child-bearing, or other causes, they have need of support, not only from *the remedial agent* so much abused, but from all the remedies brought into use since the time of Esculapius. It is, indeed, true, that “we are fearfully and wonderfully made;” but were we to follow the doctrines of the worthy professor, with his uterus perched upon the vagina, we should have the best reasons in the world for alarm. But as the work contains much that is foreign to the subject, we must look to the fathers of the science, who took nature for their guide, and thence derived information calculated to mitigate the affliction of the human family. If he had even looked into Pope, the text is made out to his hand, and instead of drawing upon fancy or the credulity of his pupils, much might have been saved to his readers. This writer says :

“First follow nature, and your judgment frame  
By her just standard which is still the same ;  
Unerring nature, still divinely bright,  
One clear, unchanged, and universal light,  
Life, force and beauty, must to all impart  
At once the source, and end, and test of art.”

But, that his “brother anatomists” who have “paraded their names in the newspapers,” and that those interested, may contemplate his incomparable arguments, the following extract, from page 188, will answer:—“Now,” says the Author, “take a utero-abdominal supporter, and adjust it as the mesmerized do, mentally upon the skeleton, and you will see that

it can have no effect to hold up the bowels ; that it can only push your fancied tractus of the linea alba *backwards against the spinal column* ; and with what effect, pray ? Surely, with none other than one of encroachment on the capacity of the abdomen. Do you not see that the belly of a living man or woman is a *vacuum plenum* ? How can you hold up the bowels by a pad ? If you could thrust them upwards in the vacuum plenum, which you cannot do, you would only thrust them towards the concave of the diaphragm. But the diaphragm must come down, or the woman will die—she can't breathe but by the descent of her diaphragm. Her diaphragm is her respiratory piston, and the trunk of the body is the cylinder in which this piston moves downward in the aspiration, and upwards in the expiration of the air of the atmosphere."

But here, you will observe, although the arguments are forced and contradictory, that if the parietes of the abdomen are "forced backwards against the spinal column," as he tells you, it must follow that the viscera of the abdomen must be prevented from encroaching upon the organs of the pelvis,—the very mischief that is to be overcome.

"But your utero-abdominal supporter," he continues, "knows better than the Providence that made this great machine ; and he is about to make the piston work half strokes in breathing ; like an engine that one is afraid of." Half strokes in breathing ! This, gentlemen, might be true ; but where can you find the *practical engineer*, who would apply a half force where no force is wanted ? Would he not exhibit his judg-

ment by confining *his piston* within its proper limits, and guard against *over* or *under* action?

Our author has also forgotten the comparative weight of the various organs which are dependent for their support on the peritoneum, and of course has reversed the principle that invariably governs the practical anatomist. The weight of the liver is forty times greater than that of the uterus and its appendages, and when we look at the two organs, and their fixed points of attachment, we shall discover that the uterus is more secure than the liver. But as the work is considered *ephemeral*, intended only for a class in the rudiments of medical study, it is presumed that the works of his distinguished cotemporaries will not suffer by its publication.

On prolapsus uteri he is alike emphatic, and without qualification maintains his position. He says, "prolapsus uteri is a disease of the vagina, not of the womb. To cure prolapsus uteri, you are to seek to cure the vagina, and when you have done that, the womb will be found cured also." This declaration, when traced to its source, is incredible. To me "'tis passing strange!" that one of the most important organs, designed by the Creator of the universe for "replenishing the earth," should be *propped* up by so feeble a support as the vagina. But, in order to determine the validity of such doctrine, let us take a cursory view of the vagina, in connection with its relative parts. The levator-ani muscle is very thin, and by its attached portions it acquires a funnel shape, and has two-thirds of its fibres inserted into the circumference of the rectum; the remaining third, into the bones

of the os coccygis, the vesicle end of the urethra, prostate gland, and the point of the perineal muscle. The triangular ligament is to be viewed in its relation to its several attachments, and its connection with this muscle and the aponeurosis pelvica; from which it will be seen that the levator has a double office to fulfil. The first is to draw up the rectum after the contents have been removed or expelled; the second, to assist the sigmoid flexure of the colon in sustaining the contents of the intestines which are made by the peristaltic and vermicular motion to gravitate to the natural outlet: otherwise, the rectum would be under the constant solicitation to part with its contents. The coccygis is a thin, flat, triangular muscle, originating from the spinous process of the ischium. Its fibres diverge, and are inserted into the border of the os coccygis; it secures this bone in its station. The sphincter-ani muscle is of an oval figure, open in its centre, its fibres surrounding the extremity of the rectum, or anus. It is attached to the os coccygis, by a species of cellular tendon, from whence two fleshy fasciculi proceed, uniting together in front of the anus. The upper margin is connected with the levator ani by cellular tissue. This muscle closes the anus, and, in the male, draws down the bulb of the urethra. The ischio-cavernosus is a small elongated muscle, placed along the ramus of the ischium, and the root of the corpus cavernosum in the male. This muscle terminates in the female, by embracing the corpus cavernosum of the clitoris. The transversus perinei is a flat, thin muscle, attached on its outer part to the ramus and tuberosity of the ischium—on the inner part to the middle line, with its fellow on the opposite side. This muscle supports the



lower part of the vagina, rectum, and bladder. The constrictor vagina consists of a number of muscular fibres, forming a sort of broad fleshy ring, surrounding the vagina. This muscle contracts the part which it embraces, viz: the labia externa and interna or nymphæ, the clitoris, and the vestibulum, the fourchette, or frenum vulvæ, and the hymen in the virgin state. These, with the above named muscles, are found within the region of the pelvis and vagina, and their uses and purposes are fully described in any of the anatomical works.

Professor W. E. Horner says: "The vagina is the intermediate part of the sexual organs. It extends from the vulva to the uterus, being placed between the bladder and rectum, compressed anteriorly and posteriorly by them. It is a membranous canal, of from four to six inches in length, differing according to age and pregnancy, being much shorter in women who have borne children than in virgins: its shape varies somewhat near the vulva; but its greater diameter is vertical; behind, near the uterus, the greatest diameter is transverse; its anterior and posterior surfaces are in contact, from the circumstances just mentioned, of pressure between the bladder and rectum; it is shorter before than behind, corresponding in this respect with the pelvis by which it is influenced, and also in consequence of being attached to the uterus higher up on the sacral than on the pubic side.

"The peritoneum, in descending from the uterus anteriorly, touches the top of the vagina for a little distance, and is then reflected to the bladder; but posteriorly, nearly the upper half of the vagina has a peritoneal coat, before this membrane is reflected to

the rectum. The attachment of the vagina to the bladder is strong and close just above the urethra, but its connection to the rectum is by rather loose cellular membrane.

“It consists of two coats, a fibrous and elastic one externally, and a mucous one internally. The first is of a reddish color, and seems to be formed of condensed cellular membrane, its fibres not passing in any determinate direction; many blood-vessels are found in its structure, and it has an abundance of large venous sinuses surrounding it.” From a survey of the anatomical structure, and from my own observations in dissection, I wholly dissent from the author of the forty-two letters, and am clearly of the opinion that, instead of the vagina supporting the uterus by its attachments to that organ, it imparts to it but little strength, and receives its own support from the connection with the peritoneum.

Such being the facts, when we consider the object and offices of the several muscles, membranes, &c., of this department, in what possible position can we place them, to represent the “pelvic floor” of the learned professor? If his position is right, his anatomy is wrong, and if prolapsus is a disease of the vagina, then is he wrong in his therapeutics, and how can he exclaim to his pupils “cure the vagina and you cure the disease?” But from the facts before us, would it not be better or more in accordance with the science, and his own pathology, to have regulated the bowels by aperients and alteratives, by simple and medicated enemas, by alum and water to restore the tone of the levator and rectum, to meet and resist at the proper point the superincumbent weight of the viscera of

the abdomen, and by the use of cold water in the vaginal membrane, with astringents and styptics, according with the pathology of the parts, rather than divert his pupils with an insufficient prop to the uterus or force upon the profession an imaginary floor, that is not sustained by the anatomical arrangement.

By my experiments on the dead subject, I have found after removing the vagina and leaving the uterus with its peritoneal attachments and round ligaments only, a considerable weight was necessary to force it from its position. This fact was realized by the dissection in two different ways. The first by removing the lower portion of the os coccygis with the same extent of the rectum and vagina, leaving the fourchette entire. This brought in view the uterus in its proper position, with the upper portion of the vagina and its attachment to the uterus and peritoneum. The second by removing the vagina with half the portion of the perinei muscles and fourchette, so as not to interfere with the rectum. These modes of dissection enabled me to determine the amount of support the uterus derived from the vagina. By making a transverse section from one ilium to the other, and by removing the upper portion of the walls of the abdomen to the sternum, and cartilaginous portion of the ribs, I was enabled to judge of the support the ligaments give to the organs of the pelvis. Then placing a block under the subject at the lumbar region, the anterior part was put on the stretch, and the bowels being thrown upwards, the organs were brought clearly into view. The hypogastric and inguinal region being now made tense, by the tenaculum, the urachus and round ligaments dissected away,

to expose the upper portion sufficiently to enable me to hold those with forceps, (the bladder being inflated in order to represent the distension brought on by retention of urine,) I could then ascertain the degree of pressure, exerted upon the uterus in different directions, and determine the strength of the ligaments when put on a stretch in the various displacements of that organ. I admit that the disease of the one may affect the other, but that the cure of prolapsus is solely dependent upon the cure of the vagina is a gratuitous assumption, sustained neither by facts nor argument. On the contrary, I contend that the uterus is sustained in its appropriate situation by the broad and round ligaments, aided by the utero-vesical and utero-sacral ligaments; and that while these ligaments retain their healthful tonicity, the uterus could not descend, even if the alleged vaginal support were removed by the scalpel. Besides, should these ligaments become relaxed, the uterus will descend not only into the vagina, but pass through it, and hang outside of the vulva. Churchill says, "it is produced, first, by a relaxation of the broad and round ligaments above; second, by a want of due tone in the vagina below. By the first, the uterus is permitted to fall, and by the second, the uterus is allowed to be received into the cavity. Such being the state of the parts, it is clear that a very slight *downward forcing* will depress the womb, and ultimately exclude it from the vaginal orifice. This force will be supplied by the *increased weight* of the uterus, if the patient *sit up or walk* soon after delivery or abortion." What value then can we attach to this flimsy vaginal support? None. Is it not the chimera of a *vacuum plenum brain*?

But what medical man can read such *anti-chirurgical and anti-physiological nonsense without feeling ashamed of his cloth.*

Furthermore, if the antagonistical point against the action of the diaphragm is made up by the levators, the sphincters, the vagina, and the other muscles forming the perineal floor below, it is equally clear there would not be one displacement where there are now one hundred, if it were not for the superincumbent weight of the viscera of the abdomen and the force of the diaphragm. The diseases of the organs contained in the cavity of the pelvis, are so closely connected, that the displacement of any one deranges the others. The uterus being displaced, frequently compresses the rectum and bladder. The rectum, overloaded and distended, deranges the uterus and vagina. Over distension of the bladder displaces the uterus, and produces prolapsus of the vagina, which is one of the fruitful causes of leucorrhœa. Prolapsus uteri may consequently be considered the most frequent, as well as the most troublesome disease to which the female is liable.

DYSMENORRHŒA, the next in order, is a disease extremely harassing, and depending upon like causes.—During the menstrual period of life, this derangement in the functions of the uterus, is the principal cause of the sterility that most generally afflicts those who are possessed of an irritable lymphatic temperament. From close attention to the history of each case treated by me, in the last five years, the following is the view I have taken of the pathology, drawn from the symptoms of the disease. These are, a sense of fulness, tension, and pain in the pelvis, loins, and back, with



an accelerated, quick and tense pulse, a hot and flushed skin, a strong manifestation of inordinate excitement, and congestion of the uterine system. In certain cases the febrile symptoms are less violent, owing to peculiarity of constitution, or impaired general health. Hence it is to be inferred that the organ is first depressed on the vagina, either directly or indirectly. This, too, arises when the functional derangement has been produced from cold, giving rise to an increased fulness of the organ, and a consequent tendency to sink into the vagina. This is the indirect form of the disease, but the more direct causes may be traced to the superincumbent weight and force, acting from above. The organ being thus displaced, its surface is brought in contact with new parts, which act on it as a foreign body, establishing in its tissues a degree of irritation, which invites a greater afflux of blood to the parts, and which is much increased at each catamenial period, amounting often to a sub-inflammatory action.

Thus, it seems to me, that the controversy between various writers, on inflammatory and non-inflammatory action, is only reconcilable on the following grounds. At the time of the periodical flow, the womb, or its lining membrane, is under the influence of inflammatory action, and, during the interval, it is in that chronic, or sub-acute form, which constitutes the condition spoken of, as a rheumatic affection. In the formation of the pseudo-membranous substance, which is often discharged, it is evident that an inflammatory or highly irritable state of the parts must have existed previously.—In this, I am sustained by Hunter, Mackintosh, and Eberle; and when the menstrual

action of the uterus is morbidly deranged, it is sufficiently obvious that the structure of the organ is in a morbid condition in some of its tissues. Hence, with a depressed womb, (the os uteri resting upon the vaginal floor of the perineum,) the weight of the viscera of the abdomen resting upon its fundus and ligaments, must necessarily produce retroflexion, or antelexion, and consequently form an angle, or bend in its cervix. While the entire organ is thus resting against new parts, acting upon them as a foreign body, what cause or causes are better calculated to produce dysmenorrhœa?

But by this suggestion it is not to be understood that they are the only causes of the disease. Some cases, though few, are congenital, and others may have been the result of a morbid action. In pathological anatomy it is understood as a principle that when "a mucous canal comes to be traversed by a less quantity of the fluids to which it gives passage, it undergoes more or less considerable contraction; on the contrary, however, when the fluids are more abundant than usual, the mucous membrane becomes much dilated, and recovers, though slowly, its primary dimensions after the cause of its distension ceases to act." The former of these pathological changes may account for Dr. Mackintosh's cases treated by dilatation; the latter should admonish us to use no remedy that would produce fluor albus. In my practice I have found nineteen cases out of twenty of my patients laboring under dysmenorrhœa, and the uterus too low in the pelvic cavity, and have invariably removed this irritating cause by the application of the supporter, with such other remedies as the pathology of the

cases required. In this position I am sustained by Professor Meigs himself, who says, "a womb that is *maintained at its proper height*, and in its *proper attitude* in the pelvis, will be, *cæteris paribus*, less likely to be the subject of dysmenorrhœa." He also, in a second sober thought, appears to have discovered the secret of misplacement, and says, "that the os tinæ rested upon the floor of the pelvis, where it had long rested; and I *supposed* that the weight of the uterus and the *superincumbent pressure* had produced an anteflexion of the cervix." That dysmenorrhœa should have continued so intractable, and the action of remedies so very unsatisfactory, is not to be wondered at, since the cause is constantly in action. The uterus is composed of a dense fibrous substance, covered externally by the peritoneum, and lined by a mucous membrane, which is continuous from the vagina, throughout the entire organ, into the fallopian tubes;—along which it extends to their fimbriated extremities, where it becomes continuous with the peritoneum—thus, presenting a singular example of the continuity of a mucous and serous membrane, with each other. To this anatomical arrangement, and known physiological law of the tissues, is to be attributed the failure of the pessaries in prolapsus.—Yet the author of "Females and their Diseases," even in this enlightened age, recommends them to his students, and says, "that only *weak people* and *quacks* pretend to scorn them." But, in the next page, I suppose, after having considered the pathological condition of the parts, and the *modus operandi* of the instrument, he says, "I detest the pessary as a disagreeable and disgusting thing, whether to order or to wear.—I will never employ one

except where a conscientious regard to the sanctity of the interests committed to my care seems to render it indispensable.”

Burns, however, in speaking of dysmenorrhœa, says, “this state of the womb sometimes produces, besides uterine pain, spasmodic affection of the bowels, or violent bearing down efforts of the abdominal muscles, as if it were intended to expel the womb itself. Such efforts are also sometimes made periodically, when the menses are altogether or nearly obstructed.” Which very clearly shows the necessity of some kind of bandage or support, to overcome the spasmodic affection of the abdomen.

The cure of these displacements—Prolapsus, Procidencia, Retroversion and Anteversion—consists in removing the cause, or causes, and in making an artificial support to resist the weight and pressure from above. This is accomplished by the application of pressure at the exact point where it is wanted. Then by the administration of the appropriate medicines, according to the symptoms of the disease, by the use of moderate exercise in the open air, and by sponging the body with cold water in the morning, when not counter-indicated by organic disease; when it is, wash with warm whiskey and water, or salt and water. Where the disease is produced by child-bearing, friction may be resorted to.

Having thus considered all that is necessary in relation to the arguments of the learned Professor, it only remains to recapitulate the views I entertain upon the subject.—In the human economy, it is well known, that the various organs are so arranged, as to be subservient to each other,—that each by the

arrangement of the elements of which it is composed, is possessed of organic life, and by the harmonious action of the whole, animal life is attained, health is secured, and each organ within the economy is enabled to perform its specific function. When a failure takes place in any of the organs, we know it must result from some definite cause or causes; but whether they are chemical or mechanical, it is certain that a removal of the cause is necessary before the cure can be effected. I, therefore, contend—

“First. That the uterus is sustained by its ligaments, and not by the vagina.

Second. That the round ligaments are not the only support that prevents the uterus from being retroverted; but that portion of the peritoneum which overhangs those ligaments and the utero-vesical septum, are the chief reflections that prevent retroversion.

Third. That the uterus must first be elevated and somewhat enlarged before it can be retroverted, or its fundus must be forced below the promontory of the sacrum before retroversion can take place.

Fourth. That prolapsus, procidentia, retroversion, anteversion and flexions of the uterus, are owing to a relaxed or weakened condition of the ligaments of the uterus, and the superincumbent weight of the viscera and force of the diaphragm.

Fifth. It seems to me, that this writer, upon “Females and their Diseases,” resulting from misplacements of the womb, has lost sight of one of the most important elements in the pathology of those cases—and that is the state of the ligaments which



are attached to, and within the pelvis, which support the womb.

He ought to have observed and remarked upon this important physiological law, viz: that the diaphragm has an antagonistical *force* on the floor which is formed at the upper marginal brim of the true pelvic cavity, and where this floor retains, together with the muscular parietes of the abdomen, its full power and energy, there can be no displacement of the womb. The repeated distension of the muscles of the abdomen, during the term of gestation, and the debilitating causes attendant on constipation of the bowels, with their frequent over distension with gas, cannot but tend to debilitate those parts, and overcome their powers of resisting the bearing down force of the diaphragm;—and as the womb depends for its support on the firmness of the tissues composing its ligaments, it is clear to my mind, that it will be carried down by the loss of power in the one and the force of the other. Hence, it is evident, both by reasoning upon, and by observing clinically, the facts, in the displacements of that organ, that the weakness and loss of power of the muscles of the abdomen, and the ligaments of the womb, have much to do with the pathology of those displacements of the uterus.

Sixth. “That long continued tenesmus, connected in its origin with a costive condition of the rectum,” and which the author asserts produces shortening of the vagina, I regard as the cause which calls into action that powerful muscle, the diaphragm, and produces displacement of the organ.

The principles which have governed my conduct in

my intercourse with the medical profession of my country are so well known that it is unnecessary to give them in detail. Suffice it to say, I lay no claims to superiority, nor urge empirical pretensions to their notice, but with that liberality which becomes the votaries of our science, would commend to their careful attention those principles of Truth which have been gained by a life of Professional toil, in "Practical Anatomy" and in "Clinical Medicine."

## ASIATIC CHOLERA.

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HAVING alluded to this fatal epidemic in the preceding essay, it becomes necessary, in the way of illustration of my views, to make further remarks in relation to the treatment and character of the malady; with the additional remedial agents which I deem requisite to meet the indications. The approaching signs of this epidemic are generally a deranged condition of the secretions, manifested by a disturbed condition of the stomach and bowels, with giddiness, debility, lassitude, a sensation of heat and distension of the stomach, nausea and vomitings. Also diarrhœa, cramp of the extremities, and in some cases spasms extending to the entire muscular system, with profuse perspiration. At first, the discharges from the bowels are but little changed in their natural character. After the first passage, they assume an ash color, or whitish appearance. These premonitory symptoms are not always the same in degree, being slight in some and severe in others; their duration is also irregular. In many the disease appears without premonition, and in some the characteristic symptoms are wanting; but such cases are rare, and the greater number, after diarrhœa has continued a

few days, are attacked with the full force of the disease. In some, the stomach is but little affected, while not a few are affected with cramp. The most prevalent symptoms are, the profuse perspiration, diarrhœa and intolerable thirst, uniform attendants in most cases, with extreme restlessness, and livid, contracted appearance of the extremities and face. This singular epidemic generally disappeared under the same symptoms with which it commenced, and when at its full height, it would suddenly change and pass off.

It is generally divided into three stages, and arranged agreeably to the conception of its character. The first is the forming stage of congestion; the second, complete congestion of the two tegumentary systems, and capillaries throughout the economy; and the third stage is that of reaction.

The first stage is delusive, and cannot be regarded as characteristic of the disease, as many who are affected with the premonitory symptoms, have vital resistance adequate to maintain a balance of the circulation, and thereby to resist the force of the offending cause. But when the disease attacks those already debilitated by any antecedent cause, they are apt to fall an early prey to the effects produced by the morbid agent.

In the second stage, no one can be deceived by the symptoms; the discharges from the stomach and bowels are glary white. There is a complete suppression of the secretions of bile and urine, with almost an entire failure in the functions of the heart and arteries, while the body is covered with cold clammy sweat. These symptoms in connection with the coldness of the surface, the livid and corrugated appear-

ance of the extremities, cannot be misunderstood, as the full stage of congestion constitutes the second stage of the disease.

The third stage restores the animal heat, and not unfrequently fatal inflammation ensues from violent reaction; but this is the hopeful stage of recovery, and the desirable one, be the sequel what it may.

The post mortem appearances vary according to the stage in which the patient died. When carried off in the cold congestive stage, the external appearance differs but little from the blue and contracted appearance of the hands and face, previous to death—the eyes are depressed in their sockets, the muscles rigid and contracted. On opening the abdomen, if the disease had run a rapid course, the peritoneal membrane has a dry appearance, or rather a want of its usual glossy polish, from being deprived of its lubricating fluid. The membrane itself has its usual color. On opening the stomach and bowels, a similar fluid to that thrown off before death is found within them. The inner coat is injected and more highly colored than is natural, with flakes of gelatinous substances attached, or hanging loosely to the inner surface. The bladder is unusually contracted—the liver but little altered, the spleen diminished, the lungs, brain, heart, but little altered, if any. In fact, in those cases where the course has been rapid, the organs contained in the cranium, chest and abdomen, really have no organic lesions, and there is nothing to account for the hurried death, except the extreme congestion of the capillary vessels. The arterial system is generally empty, or nearly so. In the subjects examined in which the



system had reacted several days previous to death, the appearances of the fluids in the stomach and bowels were altered, and various organs throughout the system were marked to a greater or less extent, with inflammation and its consequences. But on this subject details are left to other authors.

The appearances before and after death, are so uniform, that most writers have concurred in their remarks as to the extreme congestion. But it is obvious to me that a misapprehension exists with some who have written on the subject; who, from the quantity of blood found in the large venous trunks and right side of the heart, infer that congestion here is one of the causes of death. But the truth is, accumulations could not have thus taken place except in the act of dying and after death, in consequence of the contractility which forces the blood from the capillary vessels, and onward in the venous radicals. This being a point of practical importance, it is worthy the strictest attention; and as we find in the history of cholera, a concurrence in the weakened action of the heart and arteries, with rapid diminution of their size, and a like rapid advance of "ice-like coldness," we may ask, from what do these symptoms proceed, if not from a semi-stagnation of the blood in the capillary vessels?

We know that a full circulation gives heat and size to the arteries; but, in this fatal epidemic, the heat is diminished, in proportion to the diminution in quantity of the vital fluid returned to the heart to be re-propelled to the entire economy.—We also find that the heart continues to perform its functions, in a feeble manner, until the fluid is so far diminished, that there

is not a sufficient amount returned to it to induce its incitation, and hence death is the consequence of the loss of power in the capillaries.

This capillary congestion destroys the contractile force inherent in these delicate vessels, which is extraordinary until overcome by mechanical or chemical causes. The functions of these vessels also are dependent upon the physical force of the contractility, which the blood incites, and which is found to continue in action for a greater or less time after animal life is extinct. Hence, it is manifest that the circulation very much depends upon the elasticity and contractility of the coats of these vessels, from the well known fact that much less blood is found after death in the parts which were inflamed previous to death. This same force empties the arteries and engorges the various trunks by the movement of the fluids, which will account, in this disease, for the return of animal heat after death. This part of the circulating system, appears to have been wisely endowed, as we find one set of capillaries furnished with the principles of vital contractility sufficient to resist the entrance of the red blood, whilst another set are incited to the performance of their special functions by its presence. And again we see that within the range of the vital action of these extreme vessels, secretion and nutrition are carried on; and the first signs of disease or of returning health, are also displayed at this vital periphery. Hence the necessity of a high endowment of life at this part of the economy.

In this disease, as death pervades the system, the extreme spasms are to a greater or less extent overcome; whilst organic life remains possessed of suffi-

cient force to restore animal heat to the entire body from the motion of the circulating fluid impelled by the contractility of the capillary vessels, after death ;— which accounts for the blood found in the heart and venous trunks. For if during life the blood had been returned to the heart in such quantities as is found after death, though reduced in its vital principles from a loss of part of its organic elements, it must be manifest, that life would have been supported much longer in all ; and in many cases the system would have reacted favorably to recovery. Hence it is evident that death is produced in cholera from the failure of the physical functions of the capillary vessels, and the consequence of exalted action in the functions of the two tegumentary systems. The early symptoms of the disease most clearly prove this fact, as the size of the arteries is diminished from the commencement, which diminution rapidly continues until the pulse becomes extinct at the wrists, whilst the accumulations of blood are more and more manifest in the extreme vessels ; in many cases these vessels become so much distended that their contractility is completely destroyed, or at least so much weakened that in cases of incised wounds they do not contract with sufficient force to propel the fluid from their calibers—yet notwithstanding the extreme congestion of the capillaries, the sensibility of the system is but little impaired, as is manifest in the suffering of patients from mustard plasters. The intellectual faculties are generally sound from the commencement of the disease until life is extinct, unless where the system reacts and inflammation supervenes. Thus from the regularity of the congestion and the occurrence of the slight nervous derangement, it is

evident, that the circulating system is the first impressed by the morbid agent, be that what it may.

Therefore, from the foregoing conditions, and the history of the disease, as given by authors, it is manifest that, in its treatment mechanical agents are required if we expect to remove the congestion, which commences in the capillaries from direct impressions made upon them and the extreme nerves. For let it be remembered, that if the congestion were produced from a weakened action of the heart and arteries, diffusible stimulants would have been more successful in restoring the lost balance of the circulation. Hence this epidemic was more prevalent where the internal tegumentary system had been enfeebled or deranged by antecedent causes. The fact has been observed on every continent, and in every clime or district—that in proportion to the strength of the stomach and bowels, was the security against the epidemic. But the reader will consult the various authors for the history, symptoms, and remedial agents recommended by the profession; as it is the object of this essay only to introduce some additional remedial agents found valuable in practice.

#### TREATMENT.

The treatment of Cholera depends entirely upon the stage of congestion and reactions; as the remedial agents adequate and proper in one stage of the disease, would be inadequate and improper in another. Much also is dependent upon the adaptation of the remedy, and its conformity to the physiological and pathological effects on the economy. The symptoms in the forming stage of congestion are, derangement of

the digestive organs, loss of appetite, a sense of fullness in the epigastrium, heat, colic pains in the bowels, diarrhœa and debility. The indications are as follows:—

- I. To check the further extension of the congestion already commenced.
- II. To correct the secretions, and allay the irritation of the mucous membrane of the alimentary canal.
- III. To restore the loss of balance in the circulation, and remove all causes of internal and external irritation.

These objects in the incipient stage may be readily obtained in the following manner:—

- I. By a full suit of flannel to be worn next the skin.
- II. By correcting the secretions of the liver, stomach and bowels, by the use of small and repeated doses of calomel and opium; bandages and supporters, to prevent gravitation of the viscera and to assist the capillary vessels in returning the blood to the heart.
- III. The irritation, internally, may be corrected by the use of laudanum, sulphuric ether, camphor, alkalies, and a mild, bland digestible diet, regulated in accordance with the condition of the stomach and bowels.
- IV. The best means for the removal of external irritating causes, is to keep the patient in bed, with warm irons at the feet, permitting only the necessary attendants.

By the use of these remedies, in appropriate doses, and the application of the bandage with a strict adherence to the rules, as directed, the disease, in a very



large majority of cases, will be checked in its incipient stage. But much depends upon the management of remedial agents, to restore and sustain the balance of the circulation, and prevent the rapid waste of the vital fluid, from the exalted morbid action of the internal and external tegumentary systems.

The remedial agents which I have found most efficient in the treatment of this disease in addition to, and in conjunction with, such as are usually employed, will be more fully described in the treatment of the second stage of the disease. Notwithstanding the cause of cholera is unknown, its effects are as indelibly marked as a burn, and no more liable to be mistaken than the effects of such an accident. Hence the fundamental indications are as plain, though the remedial agents may not be as successful as those resorted to in the treatment of burns. As the treatment of cholera then, is really the treatment of congestion and its consequences, it will therefore be safe in the hands of the skilful practitioner, who will regulate his remedial agents in accordance with the failures of the physical and organic functions.

The mechanical agents which I have used as adjuncts in cholera, and found efficient in congestive fever, and in the collapsed stages of other fevers; also in many cases of cholera morbus and cholera infantum since 1833, have fully established their utility. I therefore confidently submit them to the profession. The cases in which they have failed, had extensive organic lesion, from inflammation, so that no course of treatment could have succeeded against the secondary form of congestion.

Those mechanical agents which I have found abso-

lutely necessary to overcome congestion in cholera, and check the profuse waste of the constituents of the blood by the morbid action of the skin and mucous membrane of the stomach and bowels, are as follows:—The common muslin roller for the extremities; a flannel roller for the abdomen; pledgets for the colon; small dry or wet cups on the surface of the body; the lancet, gentle friction, aided by elevating the hips for a few minutes after the patient has been over the close stool.

The roller is better adapted to meet the indications of congestion of the capillaries, as it is evidently owing to a loss of power in those vessels, from their engorged condition and the tonic spasm of the tissues. Congestion being the principal cause of the hurried death, it is evident it matters not what has produced it, as it must be removed, and speedily too, or death will be the result.

The roller, in the second stage of the disease, is the most efficient agent in the catalogue of mechanical means, when properly applied. In congestion, when the surface is cold with evident marks of loss of vitality in the extreme vessels, it should be commenced at the extremities with sufficient force to be gradually diminished as it passes to the body, so that the support should act equally from the extremities upwards, and in proportion to the extent and permanence of the congestion should be the tightness of the bandage. If the disease has reached the stage of collapse, the bandage should be drawn as tight as the strength of the muslin will bear, to force the blood through the venous radicals. This roller assists the capillaries to perform their functions;—it is well known in surgery

to be an efficient agent in overcoming spasmodic contractions; hence its indication in cholera, to check the spasmodic cramps that occur therein.

This is the more evident when we consider the change produced after the spasms cease in death, when the heat of the body is restored by the movement of the blood in the capillaries.

Under the flannel roller around the body, when the bowels are too freely moved, two wedge-shaped pledgets should be applied over the ascending and descending colon. The roller should commence at the hips with sufficient tightness, gradually diminishing in pressure as it passes upward to its termination two inches above the umbilicus. The tightness of the roller and the size of the pledgets will always be varied to meet the emergency of the case. In some cases they will be required partially to obstruct the ascending colon, and so completely obstruct the descending portion, as to check the action of the bowels. When properly applied, they afford great comfort to the patient from the support given to the viscera, and at the same time they abate the spasms, thereby permitting the blood to return to the heart. Again, by the aid of pledgets the bowels may be so controlled that small and repeated doses of calomel and opium, which are often indicated, are retained within the stomach and bowels, sufficiently long to change the secretions, which is so requisite in the treatment of this disease. Small cups are frequently required to assist in removing the congestion where the bandage fails to propel the blood through the capillaries. By the use of these on different parts of the body and extremities, the motion of the fluids is

facilitated, which should be aided by gentle friction made with the hand or any soft materials. If dry cups with friction fail, the wet cup should be resorted to, which, from the sudden vacuum produced by them in the capillaries, and the small amount of blood extracted, frequently produces the desired effect. In some cases, by the use of the bandage, cups and friction, the circulation will be only partially improved, and when this occurs in full habits, by the aid of general depletion and the free use of warm brandy we may frequently establish full reaction. The quantity of blood to be taken, must be determined by the operator, as no general rule can be given with any degree of safety. Friction is a useful adjuvant in cholera if gentle; but if not, it is prejudicial and highly injurious, as the object to be derived is not to increase general sensibility, but to restore that part of the circulation which is depending upon the propelling force, inherent in the capillaries, and has been overcome by engorgement and spasmodic contraction. The severe frictions practised in 1833, uniformly injured the patients, as they were made with rough materials and with too much force. In paralysis, such force may be admissible, but not in cholera. I have known dyspeptics to perpetuate the morbid action of the stomach and bowels by the use of the hair glove, which only excited the surface and cutaneous vessels, at the expense of the natural pores of the skin. Then let it be remembered, that friction in cholera, is designed to assist the enfeebled vessels in moving the fluid contained in their callibers, and not as a rubefacient.

Elixir of vitriol is one of the important remedial agents required in the treatment of cholera, from its

prompt action in abating thirst and moderating the morbid cutaneous, and intestinal secretions, which throw off part of the constituent elements of the blood, and which if not checked, leads to serious consequences. The various tests made with the different acids in 1833, and since that time in cholera morbus and congestive fevers, decidedly give elixir of vitriol the superiority. The usual dose when the sweats are profuse, is ten minims, diluted in half a glass of cold gum water, and given every fifteen or twenty minutes until the thirst and sweats are abated; about one drachm will generally suffice to check these, and quiet the stomach; when it is thrown up, it should be repeated every five or ten minutes in smaller doses. It should be taken through a quill to prevent injurious effects upon the teeth.

When the roller and pledgets are not required for the abdomen, the patient should be directed to elevate the hips for a few minutes after each alvine evacuation.

By the use of the roller, pledgets, supporters, dry and wet cups, elixir of vitriol, and the necessary precaution in elevating the hips, with the judicious use of other approved remedial agents, this fatal epidemic will be controlled and cured with nearly the same success as any of the diseases produced from malaria. But cholera being the most violent order of congestion, the deaths after reaction, in this disease, must be greater than from congestive or yellow fever.

The third stage of cholera, is that after the system has reacted, developing fever, and not unfrequently inflammation, to a greater or less extent throughout the system; but more especially upon the brain and



organs of the abdomen, which should be treated by leeching, rubefacients to the extremities and cold water to the head. When the violence of the fever restores the arteries to their natural size, wet sheets will be found to act as efficiently as in ordinary continued or remitting fevers. But if delirium or coma be present, and the arteries contracted, ice-water should be poured on the head, the body wrapped in a sheet wet with warm water, and mustard plasters applied to the lower extremities. By this course the blood will be diverted from the brain and the system brought into that condition in which the treatment recommended in remittent fever will be indicated. During convalescence, as relapses are frequent and easily produced, the diet should be moderate in quantity and quality, mild and digestible.

## MECHANICAL AGENTS.

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IN noticing the mechanical agents used by surgeons and physicians, it is not my intention to give their history, their mode of application, or the object for which they were constructed, but to describe the advantages I have derived in practice, from some of them, and the qualities of others I have been obliged to construct. I have found the bandage, or roller exceedingly useful, not only in the maladies that are termed accidental, but in the variety of ulcers, varicose veins, tumors, inflammations, œdematous swellings, debility, spasm of the muscles, &c. &c. In some cases it is used as a defence, in others as a support to retain the parts in apposition, and in many, as a stimulant to restore the lost power of the absorbents, or to exalt their action in effusions, swelling of the joints, contusions, fractures, dislocations, amputations, with fungous growth of ulcers.

In the hands of the accoucheur, we find the bandage is used for lying-in women, and occasionally during the term of gestation. But from the experience of ages, as well as the evidence derived from practice, we have a right to regard it when properly

applied, as efficient in the alleviation or cure of disease, as any other of our remedial agents. But many of the various contrivances that are thrown upon the profession, in the shape of bandages, suspensory braces, splints and trusses, are entirely deficient in their mechanical arrangement; while others called improvements by the factors, have lost by change of form, whatever of fitness or adaptation they formerly possessed, and of course their efficiency in the cure of the diseases for which they were intended. Of the number, however, that have resisted the ravages of time and the several encroachments of the venders, is the roller, which being simple and easy of construction only requires proper adjustment to insure the desired effect. In acute or sub-acute inflammation, by giving support to the enfeebled vessels, it checks the disease and frequently subdues it entirely. In dropsical swellings, when acute inflammation supervenes in the extremities, it prevents mortification, and often saves the life of the sufferer; as soon as the inflammatory action subsides if the constitution be not seriously impaired, the bandage acts as a stimulant to the enfeebled absorbents, and readily diminishes morbid action. In fractures and dislocations, it acts as an antiphlogistic, by diminishing or preventing the determination of blood to the part, thereby accelerating the functions of the absorbents.

The double roller, if properly applied in some fractures of the extremities, will be found to supersede the necessity of splints and also of extension and counter-extension, as they relax the muscles by compression. In indolent ulcers the roller is equally effective, where

there is fungous flesh, for it restores the harmony of the part, which is all that is required in attaining the cure. In cholera infantum or summer complaint the roller is useful, especially if assisted by wedge-shaped pledgets, which should be placed over the ascending and descending colon with their base in the iliac fossa, and extended from the lower boundary to two inches above a transverse line drawn through the umbilicus. When the evacuations are not too frequent, but colliquated, the roller will be sufficient without the pledgets. In such cases, it not only gives the necessary support, but moderates the increased peristaltic movements of the bowels, with as much certainty as it overcomes the respiratory movements in fractures of the ribs. In all cases where the bowels are laboring under inflammation, whether in summer complaint, diarrhœa, fever, or enteritis, a roller, (with two pledgets of sufficient size to fill up the inguinal regions from the pubis to the anterior superior spinous process of the ilium,) passing around the hips, so as to make the greatest pressure below, gradually diminishing it above, will more than equal the remedies usually employed. It is of service in any form of inflammation of the mucous coat of the bowels, and may be aided in its action by elevating the hips (with the thighs flexed) of the patient for ten minutes after each alvine evacuation, to restore the bowels to their natural position, if perchance they should be misplaced, as they are in almost all cases of debility.

The roller, then, with proper guards to prevent the descent of the bowels, is unsurpassed by therapeutical agents.

When the fever is high the roller should be wet with diluted whiskey, emollients are often useful, and sometimes turpentine is of great advantage.

The abdominal roller should be made of flannel and applied by the physician, as nurses are apt to draw it too tight at the upper boundary.

The Abdominal Supporter, an invention of my own, which I have found superior to all others, is so constructed that the bladder escapes the pressure of the instrument, and by the arrangement and construction of the elliptical pads, with the peculiar form of the spring, the back pads and side straps, is well adapted to sustain the weight of the viscera and prevent the descent of the bowels. In the treatment of inflammation of the mucous coat, arising from fever, constipation, diarrhœa, dyspepsia, and chronic gastritis, this instrument is one of the most efficient agents that has yet been tested by the profession. In all the varieties of inflammation, except peritoneal or inflammation of the uterus, where the bowels have become distended, and the tonicity of the muscular coat debilitated, so as to prevent them from adapting themselves to their contents, it gives almost immediate relief; but in the cases excepted, it requires the use of the roller and the aid of the remedies recommended under the head of constipation. This peculiar bandage is, in every part, constructed to correspond exactly to the anatomical arrangement of the parts, and being unlike any other instrument of the kind in use, it is believed that, unlike every other, it will completely answer the purpose for which it is constructed. Those heretofore employed are called utero-abdominal supporters, and since the first, constructed by Hull, no improvement

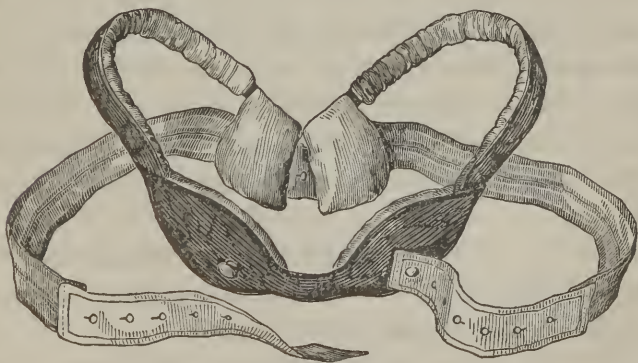


has been made. The solid front, pressing upon the urinary organs, entirely destroys their efficiency, and makes them better calculated to produce the disease than cure it. Those constructed of linen and whale-bone are alike defective in their mechanical arrangement. Their want of adaptation to the inguinal region, necessarily causes pressure to be applied where it should not be, which renders them in certain stages of the disease, instruments of torture rather than of cure. As the small intestines are so fixed to the spine by the mesenteric attachments with the meso-colon as to prevent their falling at their centre to any considerable extent, it is evident that the pressure of the supporter should be applied to the inguinal regions, in order to check the descent of the lateral portions of the intestines, which are loose, and subject to gravitation.

This will be understood by inspecting the false pelvis, and the promontory of the sacrum, with the flared condition of the ossa ilia, which was intended as a floor for the intestines ; and, by looking at the spinal column and the axis of the body, it will be seen that a supporter intended to keep the bowels within their destined limits, must act in conformity with the elastic movements of the parietes of the abdomen. The action, from inspiration at this point, being obliquely outward and downward, while that from expiration is obliquely upward and backward, and the two fixed points of these muscles being at the upper and lower boundaries of the cavity, it is plain that a bandage or spring applied here should act with the greatest force at the lower boundary, with a gradual diminution as it ascends upwards. It will also be observed, from

the location of the urinary organs, and from the offices they are destined to perform, that any bandage or spring pressing upon them must injure the patient. The flared condition of the ossa ilia, with the portion of the intestines that are liable to descend in a line with the venters of the hip bones, makes it clear, that all bandages, supporters, pads or pledgets, must be so placed or constructed, that their force, when applied to the inguinal regions, shall act from the linea alba obliquely outwards, upwards and backwards, so as to check the descent of the intestines and keep them in their natural resting place, the venters of the ilium.

These facts I have duly considered, and after many trials, and a variety of experiments, have succeeded in placing before the profession an instrument that has proved efficient not only in my own practice, but in the hands of some of the most eminent physicians of the country. Its spring is circular, corresponding with the shape of the hip bones, and terminates in back-pads, resting upon the costa of the ilium, where it is assisted by elastic side straps, passing from the back to the front, and by which the wearer is enabled to



adjust the pressure. The space between the front pads with their peculiar formation, is intended to relieve the urinary organs. The preceding cut will however give a better idea of its appearance; which being different in construction, different in shape, and different in action from any other; I have no doubt both the physician and the wearer will find it different in its results.

From great relaxation in the muscular walls of the abdomen, occasionally met with in practice, and the displacement of the viscera, I have been obliged, in some cases, to construct an additional support in the shape of a suspensory jacket, not as large as the one recommended by Dr. Dewees. This instrument, or rather addition to the supporter, is attached to the upper margin of the front pads, and by elastic straps to a shoulder brace, which is also a different contrivance from any thing in use, and may be worn separately, or attached, as the condition of the patient may require. The great object of these additions is, first, to meet the condition of corpulent cases, with a pendulous abdomen; secondly, where the viscera have been permitted to remain in a gravitated condition, which, with their influence upon the diaphragm, carry the spine forward and the shoulders inward and forward, which, after continuing for a time in this position, (although the viscera may be restored,) require assistance to enable them to return to their primitive attitude.

This is effectually afforded by the united use of the instruments, and by occasionally elevating the hips and flexing the thighs a few minutes.

In colic, a complete inversion of the body will be

required to restore the bowels to their proper position; in chronic uterine displacement also, the same treatment will restore the organ to its proper elevation, where it may be sustained if the viscera be prevented from resting on it and the lateral ligaments, (by the use of the supporter and bandage,) with proper care and rest in the recumbent posture, for a short time.

*Cupping glasses* are very important mechanical agents.

In the treatment of capillary congestion, the small cups, (half the usual size,) applied on various parts of the body, have proved very efficient, when aided by friction and the use of the common roller. These means have saved many from an untimely grave.

In typhus or typhoid fever where the pulse was almost imperceptible, when the morbid inflammatory action on the internal organs had been partially relieved, I have seen the happiest results from the use of these agents.

In irritative fever also, where there is watchfulness and a thready pulse, the same success has followed, (the roller being applied to the extremities,) the pulse has increased to nearly its natural size, and diminished in frequency from one hundred and thirty to eighty, while sleep was obtained, and diaphoresis established.

These agents alone cannot overcome local inflammation, so as to produce such a change, nor should we expect it; but, from the intimacy between the capillary vessels of the external and internal surfaces, they will greatly assist in bringing the morbid action under the control of the ordinary remedies. How many cases do we meet with, where no organic

changes are to be found after death, that will satisfactorily account for the fatal termination? Is it not more than probable then, from the tendency of the fluids to gravitate, and from the loss of power in the capillary vessels, that the heart propels the red blood into the capillaries, where it gradually accumulates until the amount of blood in circulation is insufficient to support life. The condition of the capillaries after death, strongly inculcates this doctrine, for we invariably find in post mortem examinations, that the capillaries of the most pendant parts, are congested or engorged with purple fluid, if death has ensued from debilitating disease; but such congestion, is not seen when death is sudden, as from disease of the heart, asphyxia by hanging, &c. I have tried in vain to find it in five cases, in which death resulted from strangulation.

Such results prove conclusively, to my mind, that this capillary congestion, is not the effect or result of death, but rather the cause of death.

The *Pessary*, as a mechanical agent, has been employed in every age and country, and generally without credit to the profession or relief to the afflicted. At the present time, notwithstanding this fact a difference of opinion exists, which to me is strange indeed, since the anatomy of the parts, their pathological condition, and the mechanical action of the pessary, present insurmountable objections to its use.

Is it not time to discard such unnatural, indelicate, health-destroying remedies, and practice in accordance with the laws of the animal economy and the legitimate action of the remedial agents? A stubborn adherence to obsolete, vulgar, and antiquated remedies,



is not an evidence of the march of intellect, or general improvement in science. It is pacing upon the old inclined wheel, and perpetuating the notions of antiquity, that have tortured the better portion of creation since the date of the invention. As a remedial agent, it has not been successful in one case out of fifty, and is not admissible in any case of prolapsus, procidentia, or retroversion, resulting from ordinary causes, except where laceration of the perinæum exists, and then but as the lesser of two great evils. All other misplacements of the womb are best treated by removing the causes of derangement, and by giving nature that support which is necessary to recuperative action.

If a pessary be used as an adjuvant to the external supporter, it should be constructed (very differently from those in general use,) of India rubber, in the form of an oblong sack, of thin material, to render it yielding, lest it might irritate and produce absorption, excoriations, &c. This should be furnished with a ligature by which it should be extracted every two or three days for the purpose of cleansing the instrument, and washing the parts. It should not be continued in use more than two weeks at furthest.

But I may express my views as well while I quote the language of a celebrated author, Dr. Whitehead, surgeon to the Lying-in hospital at Manchester; who has recently published an elaborate work, on "Abortion and Sterility." Having examined some two thousand cases, from which it may be presumed his acquaintance with the effects of such remedial agents was somewhat familiar, he says; "The treatment generally adopted in these cases, (prolapsus uteri, &c.,) is altogether *unscientific and ineffectual*; consisting,

principally, in the application of mechanical support by means of pessaries, a great variety of which have been, at different times, invented for the purpose. These instruments serve, generally speaking, to maintain the displaced organ in an elevated, although by no means in its natural position; but their pressure in the vagina, is one of the most unfortunate and annoying circumstances that can possibly be necessitated in married life. *They invariably aggravate the disease,* for the relief of which they are employed; they extend the inflammatory action of the cervix in cases where it was already present, and frequently *create it* in those wherein it did not previously exist; they irritate, and often *completely destroy* the healthy tone of the vagina, augmenting the leucorrhœal discharge, and, unless very frequently removed, are liable to detain the morbid secretion for an indefinite period within the cavity; they have also a tendency to encourage putrefaction, and thus to originate a source of constitutional irritation sufficient to derange the general health in a most serious manner."

HERNIA is an affection for the relief and cure of which, mechanical agents chiefly, are employed and indicated.

Of these a vast number have been employed, and the great variety of forms and modifications which have been invented, and which have come into and gone out of vogue, and especially their failure to meet the indications, prove conclusively, that all those heretofore employed have been defective and not well adapted to the anatomical arrangement of the parts to be sustained.

Hernia being a prolific source of affliction to the

human family, with sometimes fearful consequences, has given rise to the construction of a vast number of bandages, with and without springs, for its relief and cure, and to give a history of which could in no ways benefit the profession, or afford relief to the sufferer. Their forms are generally known, though every year has produced its various modifications, all of which have proved of little consequence. The mechanical arrangement of the blocks or cushions employed with a design to close the internal abdominal ring, and press upon the external ring, are not constructed in conformity with a proper adaptation to the anatomical arrangement of the parts, and therefore are not calculated to fulfil the indications; and hence the class of hernia that is really curable is rendered incurable by such agents.

Instead of making pressure over two thirds of the whole abdominal canal, and thereby leaving the internal ring to nature's influence, their force distends the internal ring, which being removed admits the entrance of the viscera, and hence a favorable result, would be accidental rather than from any judicious arrangement of the pads.

From the anatomy of the parts it is obvious, that any substance applied opposite the internal ring is compelled to distend it, instead of closing it; the pressure from a flat or convex surface, with the force of the spring acting upon the walls of the abdomen, which are made up of yielding or elastic fibres, must necessarily increase the internal surface and extend the orifice by which the viscera passes into the canal. Again: the size of the block is such, that their

pressure on the parts, obstructs to a certain extent, the circulation of the blood, and the action of the spring on the spine produces in some constitutions, serious spinal irritation. Other objections might be urged, but it is not necessary. Those who have worn them, can tell how enduring have been their sufferings.

Finding these objections to the trusses in use were serious obstacles in my practice for the treatment of hernia, (especially since those afflicted were obliged to resort to their own inventions, for relief,) I commenced to construct an instrument which would if possible, answer the desired indications without any exceptions, and how far I have succeeded, an inspection of its form and proper adaptation to the parts, to which it is applied, and also the many happy results of its application or employment, will sufficiently show.

The instrument I use for hernia, as may be seen in the cut, is similar in its general form to the supporter already described; the pad is so adjusted that it can be moved or turned in any direction as the case may require, to avoid pressure on the spermatic cord, blood-



vessels, &c. In front is a narrow plate, convex anteriorly, which connects the lateral or inguinal portions of the instrument, and by means of which these portions can be adjusted to the parts at pleasure.

The inguinal plates to which the pads or blocks are attached, have an oblong fissure, and their upper boundary acts as an abdominal supporter, whilst the lower boundary is so arranged that a lateral and perpendicular play is given to the pads that permits their adjustment to the parts where the force is required.

Elastic straps also connect the back pads with the front plates, by which the pressure of the pad may be increased or diminished, and the pressure of the spring on the pelvis prevented.

To close the internal ring, and at the same time give the proper support to the external, will require three separate points of action. The triangular openings in the tendons of the oblique muscles, having two fixed portions of attachment, one at the ilium and the other at the symphysis pubis, it is manifest that a spring being permitted to traverse the inner margin of the ilium from the inferior to the superior anterior spinous process, and made to act equally on the tendinous portion of those oblique muscles at one of the fixed points, would make them tense and diminish the size of the triangular opening in the tendon, which constitutes the external hernial ring; and at the same time, by this perpendicular pressure at the inner margin of the ilia, a degree of resistance is given to the entire inguinal region that prevents the parts from becoming pendulous, which, if permitted, would

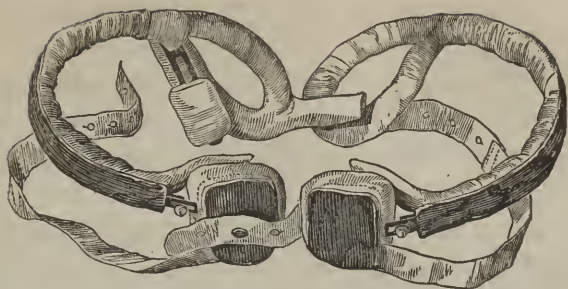


facilitate the entrance of the viscera into the internal ring. No instrument acting on one of the inguinal regions, by a single spring, fastened with a strap, can be properly adjusted to the parts, as the force of the pad and neck of the truss are drawn outward against the inner and upper junction of the thigh and ilium, which compress the inguinal glands and blood-vessels of the part. This fact, I have no doubt, has been observed by every surgeon and physician in Europe and America.

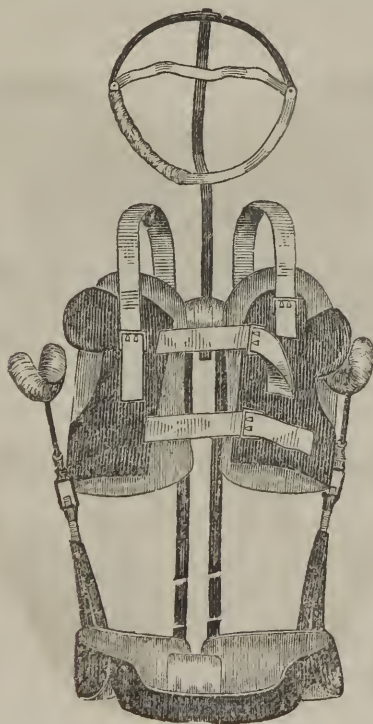
Another point to be observed in the adaptation of the instrument is the size of the pads, which should, in this variety, be small, and of a triangular shape, diminishing in thickness from below upwards, so that when applied over the external ring, it will cover only half of the abdominal canal, and leave the internal ring to overhang the parts opposite the oblong opening in the inguinal plates. By this arrangement, if there be no adhesions of the sac, the internal ring is left free, where nature restores it to its normal size.

Where adhesions have formed to prevent the return of the sac, the pad should be increased in width, so that when applied to the external ring, it would cover two-thirds of the abdominal canal, leaving the internal ring free at the upper margin of the pad.

The different sizes of pads for the several varieties of hernia, are noticed under the head of treatment. In the treatment of crural hernia, in bad cases, I have adapted an additional elliptic spring, to which the pad is attached for the purpose of increasing the pressure. But the following cut will give a clearer understanding of its character.

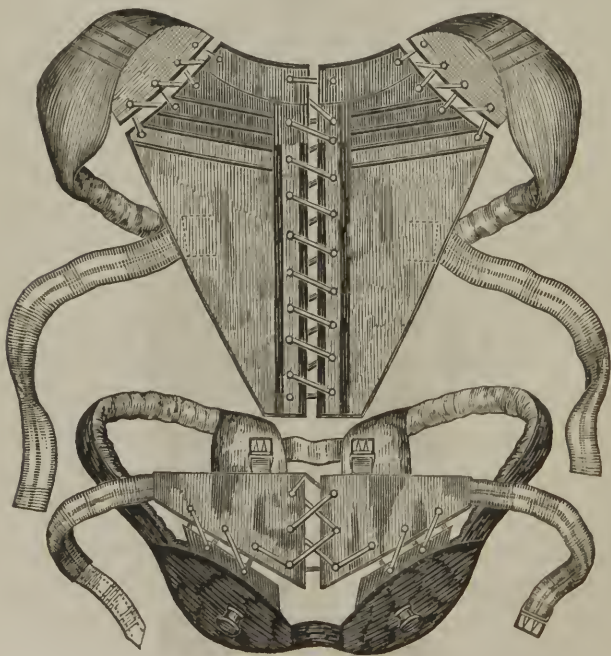


For the treatment of diseases of the spine I have also constructed an instrument, by which the weight of the body is sustained upon the pelvis. This is adjusted by means of screws attached to its crutch, and acts



on the principle of extension and counter-extension, straightening the spine and restoring it to its original length. The drawing however, I deem sufficient to enable the manufacturer to construct it properly. Mr. Gemrig, South Eighth street, has made several, to order.

The following drawing exhibits the appearance of a shoulder brace, which, in connection with the supporter, will be found an excellent adjunct in the treatment of the diseases of the chest, arising from gravitation of the viscera of the abdomen, and imperfect respiration. It may be used without the supporter by substituting a piece of webbing resembling the old suspensary jacket, and fastened by elastic straps at an



angle corresponding with the range of the oblique muscle. This is useful for corpulent persons, and females during the latter months of gestation; and in all cases of disease arising from strumous habit, and loss of muscular power subservient to the support of the abdominal viscera and respiratory organs, it is indispensable.

By the timely use of this brace and supporting bandage, many of the diseases of the thoracic organs will be checked in their incipient stage; and where disease of the lungs or the heart has become developed, they remove one of the most irritating causes, and greatly contribute to the restoration of the patient.

Every man who understands the anatomical arrangement of the muscles that are subservient to respiration, and the viscera of the abdomen, will see how impossible it is for debilitated muscles, unassisted, to perform their physical functions, and how important is the healthy action of the respiratory organs in the treatment of disease. He will also see that therapeutical agents are but palliatives, without mechanical assistance.

*The elevation of the hips*, while the patient is lying on his right side, is a very useful means, though temporary, of restoring the viscera to the cavity of the abdomen, where they compress the diaphragm in expiration; for it not only gives immediate relief to the patient, but is a good test in detecting the true character of disease.

By this test, I have found, that many diseases which were thought to be affections of the heart, were but the result of a depression of the diaphragm from gravitation of the abdominal viscera.

REDUCIBLE HERNIA.—The agents used in the treatment of reducible hernia, in all ages, have been bandages of various kinds, with or without springs, and furnished with pads of soft or solid materials. Each kind has had its advocates, and from time to time, their claims to perfection, have been made and passed away. But to the surgeon it must have been obvious, that no single form of pad, no matter how well adapted for one class, could possibly be adapted to all the varieties of hernia. In simple inguinal hernia, where the sac has formed no adhesions, the cure must depend upon the natural laws of the nutritive deposition and contractility of the parts; but in the other variety, where intimate adhesion has taken place, so as to forbid the return of the sac, the cure is to be accomplished through adhesive inflammation, excited in the parts. In ventral hernia, the cure is to be effected by the same process. Professor Gibson, of the University of Pennsylvania, in his valuable treatise on Surgery, says:

“Reducible, irreducible, and strangulated hernia, all require distinct and particular modes of treatment.

“For reducible hernia, an *appropriate truss* is the only remedy, and the sooner this is applied the better. Formerly an opinion prevailed that such instruments were not adapted to infants; the error has been amply rectified by modern experience, and much mischief thereby prevented. Trusses are either elastic or non-elastic; the latter are now seldom employed, and never can be to advantage. A well constructed steel truss often effects a perfect cure, especially in children and young subjects, by exciting a degree of inflammation sufficient to agglutinate the sides of the sac, or the edges of the opening through which the hernia has



passed. To accomplish this purpose, great attention must be paid by the surgeon in adapting the instrument to the parts, and by the patient in wearing it without intermission. The best mode of fitting a patient with a truss, is to try a number of instruments, and select the one that adapts itself best to the hollows and projections about the abdomen and pelvis, and can be worn with the least inconvenience. A well contrived truss will fit accurately in every part, and set closely to the body, neither bulging in particular places, nor binding too closely. Every patient should be provided with a spare truss, in case of accident. To prevent the pad of the truss from imbibing perspiration and becoming hard, a bit of calico, muslin, or rabbit skin should be placed between it and the tumor. With a view also of obviating rust, to which the spring is very liable, the instrument may be thickly covered with durable leather, or some similar material, and with oil-cloth, or gum elastic when the patient has occasion to bathe. A truss, to derive full benefit from it, must be worn night and day, and for months and years together. Particular varieties of truss will be noticed when the different species of hernia are described."

In this extract we have all that is necessary by way of preface, and as it is presumed every surgeon is, or ought to be, acquainted with the anatomy of the parts before attempting the application of a truss, I shall proceed with the treatment. The numerous and important blood-vessels, nerves, and lymphatics found in the inguinal region, where hernia prevails, require care in the application of a bandage provided with

hard or soft pads, lest too much pressure on the spermatic cord might injure the testes.

Inguinal and scrotal hernia, where the sac has formed no adhesions, and can be returned to the cavity of the abdomen, will require a treatment different from what is required where adhesions have taken place. The same remark applies to the treatment of ventral hernia.

INGUINAL HERNIA.—The treatment of this species of hernia, where the sac has formed no adhesions, consists in the application of an appropriate elastic truss or apparatus which is calculated, when applied, to prevent the viscera of the abdomen from protruding, by closing the internal ring, and at the same time giving to the external ring, the proper support. The inguinal regions being thin and yielding, any pressure made opposite an aperture, on an elastic or yielding body, will necessarily distend, instead of closing it. Hence all forms of pads of a sufficient size to cover the entire inguinal canal, and press upon the parts opposite the internal ring, check nature in her recuperative powers, in restoring the part to a healthy condition: consequently all cases of recovery in this species of hernia, have hitherto been the result of accident rather than of any judicious arrangement of the pads, for these being too large, increase the action of the absorbents by their pressure, which gradually weakens the parts, enlarges the internal ring, and thus lessens the chances of cure.

In this form of hernia, the size of the pad should be sufficient only to cover the external triangular opening and one half of the abdominal canal, allowing the internal ring to overhang its upper margin. An

inch and a half above this, the superior boundary or rim of the truss which I use, greatly assists, like the supporter, the abdominal muscles, in sustaining the weight of the viscera, and thus preventing their encroachment upon the internal ring.

The instrument adapted to the treatment of this form of hernia, and which I have tested in numerous cases for the last fifteen years, is described in the essay on mechanical agents, where the reader may obtain a better idea of its construction both by the cut and description there given.

In applying the truss, the pad should be placed in a position corresponding to the direction of the tendons of the oblique muscle and Poupart's ligament, its lower edge resting at the margin of the pubes.

When applied, the integuments should be raised upwards and outwards so that the internal ring will be opposite the fenestra, between the pad and rim of the truss.

The patient should be instructed closely to observe its proper adjustment, as it is by this that the internal ring is closed, and the bowel prevented from escaping.

**VENTRO-INGUINAL HERNIA.**—In the treatment of this form of hernia, where the sac has formed adhesions, the pad should be made of wood, or ivory; at least one inch and a quarter in width at the perpendicular line corresponding with the recti-abdominal muscle, and tapered from its base to its upper edge, making it nearly in the form of a right-angled triangle.

A pad of this form and size will retain the bowels pressing upon a surface fourteen lines wide over the inguinal canal, leaving the internal ring free at the

upper margin of the pad, as in inguinal hernia, where it rests opposite the opening as above described. This is the species of hernia so correctly described by Professor Gibson, as cured by adhesive inflammation, excited by pressure upon the sac, or edges of the hernial opening.

Sir Astley Cooper, whose theory is the same, directs that pressure be made upon the internal ring, and over the whole inguinal canal, thus exciting inflammation by which the sac becomes adherent.

Indeed no plan has been proposed for the cure of this affection, which is not based upon the principle of union from adhesive inflammation.

This theory is confirmed by practice in ventro-inguinal hernia. But notwithstanding the hernial sac is thus readily made to unite, the form and size of the pads in general use, distend the internal ring, while the absorbents diminish the strength of the parts, so that as soon as the pressure is removed, the weight of the viscera forces down a new hernial sac, leaving the patient worse than before.

In 1834, I relied chiefly upon adhesive inflammation for my cures, but subsequent experience has taught me that but little is gained by the union of the sac, unless the internal ring be left free to contract upon its neck, which I proved by many experiments.

In this form of hernia there is a greater liability to recurrence, than in that where no adhesions have formed previous to the application of the instrument. The hard pads, in a majority of cases, should not be continued longer than six months, if the bowels have been uniformly retained in their natural position. In fleshy individuals they may be worn from nine to

twelve months. I have generally found the absorbents to weaken the parts and break up new adhesions when the pad is worn too long. After the adhesions are formed the pad should be changed to one of soft materials, of the same size at its lower boundary, but diminished in width to the size of the inguinal pads. During the use of these instruments the parts should be sponged night and morning with cold water, and the hips should be elevated for five or ten minutes while in bed, to restore the bowels to their proper position.

FEMORAL HERNIA.—The passage of the intestines beneath Poupart's ligament into the crural ring (which constitutes this disease) is well described by Professor Gibson.

“The contents of a femoral or crural hernia, instead of passing through the abdominal rings, are protruded beneath Poupart's ligament through an opening termed the *crural* ring. This ring is bounded on the outer or iliac side, by the femoral vein, on the inner or pubic side by Gimbernat's ligament, anteriorly by Poupart's ligament, and posteriorly by the pubes. Poupart's ligament arises from the spine of the ilium, and is implanted by a broad insertion into the symphysis pubis, into the tuberosity of the pubes and into the ligament of the pubes, over the linea-ilio pectinea. By this last insertion a sharp crescentic edge is formed, the concavity of which looks towards the crural vein, and is supposed by most writers, to contribute mainly to the constriction in cases of strangulated crural hernia. From having been particularly described by Gimbernat, a Spanish surgeon, it is frequently called *Gimbernat's* ligament. There are two margins to Poupart's



ligament, an anterior and posterior, the former of which is straight, the latter concave, in the vicinity of the pubes.

“The *fascia lata* of the thigh, as it approaches Poupart’s ligament, divides into two portions—the *iliac* (sometimes called *sartorial*) and pectineal. The former is connected to Poupart’s ligament throughout the greater part of its extent; the latter is attached to the pubes, covers the muscles that spring from that bone, and unites with the iliac portion below, at the spot where the vena saphena major enters the femoral vein.

“Women are more subject to femoral hernia than men, owing partly to the great breadth of the female pelvis.”

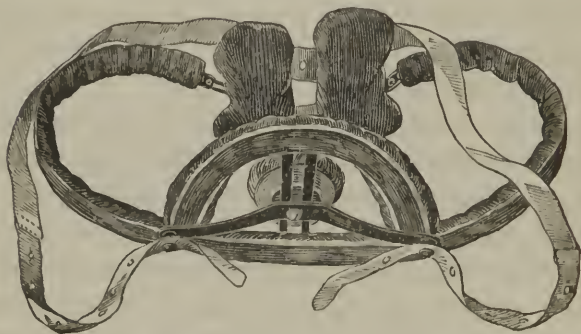
The instrument used in this form is the same as the inguinal truss, and may be easily applied by changing the pad from its oblique to a perpendicular direction, so that its lower boundary may rest at the upper margin of the pubic bone, and in contact with the inferior anterior spinous process of the ilium. It will then close the crural ring. The pad should not be permitted to rest fully upon the upper portion of the thigh, as it will only close the aperture by compressing it between the pad and bone, and defeat nature in restoring the ring to its natural size. In bad cases of femoral hernia, an additional elliptic spring is attached to the iliac portion of the instrument, (to which the pad is attached,) which increases its retentive power. But few cases, however, require this additional spring. The form of the pad that has been found best adapted to this form of hernia, has a plano-convex surface, tapering equally on each side, leaving the convex surface half an inch in width, which should be *excavated*

so as to prevent its central portion from acting upon the ligaments. The length of the pad should be about two inches, and the width of the portion attached to the spring one inch and a half. A pad of this form and size when adapted to the part, will escape the important blood-vessels and glands as far as is practicable. When well formed with a wooden boundary, and covered with soft material, it will secure the patient against the escape of the bowel, and afford all the comfort that is to be obtained from any form of instrument. My experience in the application of the instrument in this form of hernia has been considerable, and, one-third of those I have attended, within the limits of my practice have been cured.

UMBILICAL HERNIA.—This form of hernia, when congenital, is treated with pads and bandages properly adjusted, and with ligatures passing around the sac and integument, with sufficient force to produce sloughing of the parts, by which the edges are united. But as a general agent, some form of truss is preferable as being less painful and hazardous, in the treatment of children and youth, and also to secure the adult from the danger of strangulation, or a further distension of the umbilical opening. A well constructed truss, with a suitable pad and spring properly adapted to the body, not only keeps its place, but with ordinary care, is the most certain means of accomplishing a cure. In the young the cure is generally effected through the nutritive process, if the viscera be kept up for a year or two; in the adult when the aperture is not large, a well adjusted pad of firm material, may occasionally succeed by the process of adhesive inflammation.

Having tested most of the instruments used in this form of hernia and found them defective, I have constructed one of late, which proves less objectionable, as it is less liable to misplacement, more comfortable for the patient, and more effectual in its retentive powers than any other I have ever used.

The form of the pad secures it from passing into the aperture, when attached to the spring. But the following cut will exhibit its form, and perhaps enable the surgeon to determine its advantages.



The main spring is made to pass around the body and rest upon pads at the upper boundary of the hip bones. In front is attached a circular plate of sufficient size to pass two inches above the umbilicus;—to the centre, in a perpendicular line, is a thin narrow steel plate, attached by a hinge, with fissures or slides for the adjustment of the pad, which is constructed of ivory or wood, with two convex surfaces—the largest convexity in the centre. This form will prevent the viscera from protruding; and the outer convex margin or rim will prevent the central part from entering the umbilical opening further than is necessary to

retain the viscera in their proper cavity. By this double convexity the pad is enabled to retain its place on the principle of atmospheric pressure—the plate to which the pad is attached is also connected with two small elliptic springs, which are again attached to side straps. These pass around the body to the back pads where they are fastened. By this arrangement, the surgeon or patient is enabled to adjust the pressure according to his pleasure and comfort.

This form of pad, I have found better than any of the convex pads usually worn. By it children may generally be cured in one or two years, according to the size of the opening,—where this is very small, a month or two will accomplish the object. In adult cases my cures have not been more than one fifth, but in every case I have succeeded in making the patient comfortable and secure, against stangulation. The parts under the pads should be sponged night and morning with cold water, to sustain the strength of the muscles.

## HEMORRHOIDS, OR PILES.

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THIS disease has become, of late years, a common malady, and is said to be produced by obstructions in the portal circulation, and other local causes; by constipation producing mechanical pressure upon the hemorrhoidal veins; by aloetic pills and other irritating nostrums; by pregnancy obstructing the returning veins; by suppression of the menses, and other habitual discharges, and by excesses in eating and drinking, conjoined with sedentary habits.

That the former is capable of producing congestion, of the stomach and bowels, is unquestionably true, as any obstruction to the course of the blood through the liver, must produce congestion in all the tributaries to the vena portarum. But is it to be supposed that this congestion is more likely to produce disease of the rectum, than of other parts of the alimentary canal, unless a previous local impression had been made upon the rectum by an antecedent cause?

That constipation is calculated to produce piles, no one can possibly deny; but constipation, is itself a consequence of sundry defects, arising from different causes. Among these are debility of the muscular



coat of the bowels, deficient secretion of the liver, and mechanical obstruction arising from the descent of the sigmoid flexure of the colon into the pelvic cavity, where it presses upon the rectum. The displacement consequently produces obstruction of the bowels, and prevents the return of the blood from the venous trunks of the rectum. By the former, the bowels become loaded or impacted, which gradually debilitates the rectum until the portion divested of its peritoneal coat, becomes distended and enlarged; by the latter, the hemorrhoidal blood-vessels become distended, and from these obstructions the afflux of blood is determined to the rectum. This is followed by acute or sub-acute inflammation beneath the mucous coat in the cellular tissue, and constitutes those hard fleshy tumours, which give rise to so much pain. From such facts, it may then be asked, what cause is better calculated to produce piles than these?

Hence, I am inclined to the belief that the prolapsed condition of the sigmoid flexure of the colon, is the primary cause of this painful malady; as observation and experience most clearly demonstrate that piles mainly depend upon local causes, acting directly upon the rectum, and not, as heretofore believed, upon hepatic derangement. Instead of piles being produced by obstruction of the liver, this organ is more frequently deranged in its functions as the consequence of piles, and their causes.

Those who have been in the habit of exploring the rectum, must have observed its uniform enlargement one inch above the sphincter ani, at the insertion of the larger proportion of the fibres of the levator ani. The space between the insertion of this muscle

and the peritoneal coat, is in all cases of piles enlarged and loaded with fleshy and varicose tumours, or both.

In the early stages of this disease the symptoms are, a sense of fulness and weight in the pelvis and rectum, which is attributed, by the patient, to a loaded condition of the lower bowels. This condition being neglected, the varicose tumours partially give way, streaking the fæces with blood, or else a free discharge from the rupture of one or more of the soft tumours which have made their appearance at the anus, giving rise to considerable pain, and in females many nervous symptoms, the nature of which is often misunderstood. In the forming stage of the hard fleshy tumours, the most uniform symptoms are a throbbing, stinging heat, within the verge of the anus, a tormenting itching sensation, and a sense of fulness of the part, the margin of which is considerably enlarged. On applying the finger to the rectum, there will be found irregular points beneath the integument, which make their appearance at the verge—sometimes one, sometimes two or three, and at other times the entire margin is thickened or indurated. These tumours in many persons never make their appearance externally, but are alike annoying and injurious to the general health, especially when the tumours are formed within the action of the levator ani muscle, where they are often found.

This form of piles produces more constitutional derangement of the economy than any other. I have observed in this part of the rectum that a small tumour deranged the system more than one double its size would do above the insertion of the muscle. They

are generally of different sizes and shapes;—some almost closing the natural passage.

This form of piles is frequently mistaken for the disease of the liver and digestive organs. In females, such tumours are frequently the cause of hysteria, nervous palpitations of the heart, and many other anomalous symptoms.

The enlargement of the rectum above the levator ani muscle, and its effect upon the internal tunic, which is so lengthened, that during defecation, it becomes prolapsed, and has to be returned by pressure, is sufficient evidence to prove that the disease is the offspring of a mechanical cause.

At what point is the bowel most frequently perforated by fistula? Is it not at the marginal insertion of the levator ani muscle? Examine the nature of the varicose and fleshy tumours, and say if the former is not produced by the mechanical pressure of the sigmoid flexure of the colon; and the latter from sub-acute inflammation of the cellular tissue beneath the mucous membranes. Then if this be the primary cause of the disease, what should be the remedy in its incipient stage? and to what should it be directed—to the consequences, or its cause? It has been my uniform rule to treat all cases of diseased rectum with reference to their cause, and to obviate constitutional symptoms as circumstances may indicate, and I have yet to meet with the case that will oblige me to regret the adoption of this rule.

With this view of the subject, the several indications necessary in the treatment, will be easily made out, and severally met, so far as is requisite for the

clinical practitioner. The surgeon being provided with an ample stock of knowledge upon his shelves, will not require details here, to assist him in operating for fistulous openings, excisions, or for strangulating the tumours. As I believe piles to be a local disease, depending upon causes wholly different from the popular theory of obstruction in the portal circulation; hence, the general indications will be given in accordance with this belief. But as the prevailing opinion, in relation to the propriety of suppressing the habitual discharges attendant upon this disease, (which arises from the assumption that piles is the consequence of constitutional derangement,) has not, in my opinion, been carried out in practice, I shall endeavor to prove the consistency of the principles that are necessary to sustain my views on the subject. Every body knows, or ought to know, that habitual discharges, established either from local or constitutional causes, and permitted to continue for any length of time, cannot be safely suppressed without subjecting the vital organs to congestion. But what effect has the popular erroneous theory upon the well informed surgeon, who is familiar with the effects of local disease upon the general constitution? Will it deter him from removing the irritating cause, when a musket ball in a gun-shot wound is keeping up the discharge and constitutional derangement of the system? In such cases, the judicious surgeon prepares the constitution of his patient, and regulates the digestive organs before he pretends to operate. When this is accomplished and the wound begins to close, gradually suppressing the discharge, an alterative course of remedial agents is resorted to,

with the intention of increasing the functions of the emunctories.

By such treatment, local congestion is prevented, until the debilitated parts of the system are made to harmonize. In like manner, we find the surgeon regulating and preparing his patient for the operation in case of fistula ; or, when a hemorrhoidal tumour is to be excised, or strangulated within the rectum. If the same precautionary steps be observed in the treatment of piles throughout the different stages of the disease, there will be no necessity for cavilling as to whether the disease arises from local or constitutional causes.

The general indications to be kept in view in the treatment are, consequently,

- I. To remove the cause of the disease.
- II. To regulate the constitutional symptoms and the digestive organs.
- III. To suppress the excessive discharges, and remove the tumours by pressure, scalpel or ligature, and restore the bowel to a healthy condition.

The first indication may be met as follows: by inverting the body or elevating the hips, or by a recumbent posture on the right side, while the body slightly inclines forward, and the thighs are flexed to restore the sigmoid flexure to its proper position. After which a supporter should be applied with its left inguinal cushion about an inch thicker than its ordinary size. This additional fulness at its inner margin will prevent the sigmoid flexure from descending again into the true pelvic cavity, and thus remove one of the principal causes of piles. The bowels also should be regulated by the use of sulphur,



and cream of tartar, which with the supporter, will relieve many cases in the incipient stage. But if the digestive organs have been deranged by local irritation, a blue pill or two should be given, with aperients, and assisted by injections of cold water every morning.

The second indication to be met, will vary in accordance with the symptoms. If inflammation be discovered around the verge of the anus, from either form of the tumours, leeches should be applied, and the parts frequently sponged with cold water. If local disease has established vascular action, and the patient be of full habit, general blood-letting is indicated. In such cases, a dose or two of calomel will be useful,—more especially if combined with prepared chalk and ipecacuanha, which will act mildly and efficiently. If the system has become debilitated, and chronic inflammation is discovered in the rectum, with constitutional disturbance, counter-irritants to the loins and inner parts of the thighs, and hip bath, will check the violence of the disease; five grains of blue mass, and four grains of Dover's powder, taken at bed-time, are often indicated to restore the secretions. The bowels should be regulated by vegetable diet and injections of cold water.\*

The *third* set of indications, (two of which properly belong to surgery,) have been sufficiently noticed as preparatory to the operations by ligature or the knife.

The treatment I have adopted to restore the alimentary canal and arrest the disease of the rectum (without the use of the knife or ligature,) is different from any heretofore recommended, and I here subjoin

an *electuary*, which I have found useful with other agents.

R. Inul. Helen. rad. pulv.	℥iiss.	
Sem. Anis,	“	℥iss.
Capsi. Afric,	“	℥ii.
Mel. despum,	℥viii.	M.

Of this mixture take a teaspoonful two or three times a day.

This is useful as an aperient or mild stimulant, to regulate the bowels and restore the mucous membrane to a healthy condition. This article I have found to be more efficient in ulceration of the rectum and debility of the bowels, when used in conjunction with washes and alteratives, than any other remedy I ever tried. It is similar to the article recommended by Sir Astley Cooper, called “Ward’s paste,” for the treatment of fistula. When the disease is produced from debility of the muscular coat, and distension of the intestines from constipation, the alimentary canal should be restored to its original size by the remedies recommended in the *Essay on Constipation*, and this electuary, after which the local disease should be treated by introducing a gum-elastic sack of a conical form, terminating in a neck below, about five lines in diameter, to which a catheter is to be attached. This sack is to be introduced above the levator ani muscle, with the fore finger, and then the catheter will convey it to the junction of the rectum and sigmoid flexure, where it is designed to rest. Being thus adjusted at the upper boundary of the distended portion of the rectum, by attaching the end of a large syringe to the external end of the catheter, the sack can be inflated so as to

fill the bowel. The object of this, is to prevent the washes that are necessary in the treatment, from passing higher than designed, and also to leave the wash under the control of the syringe, that it may be retracted at will, by this instrument. By this simple arrangement, the operator is enabled to select his washes as indicated, without risk. If the wash be composed of dangerous materials it can be removed; but without this sac, or some similar contrivance, such as a fine sponge, the wash injected, would be thrown into the sigmoid flexure of the colon, whence I have found it difficult to retract it, with even the aid of a stomach tube.

In one instance where the yellow wash was used, so much was retained that it produced ptyalism of a severe form, which increased the debility of the patient, and gave rise to unnecessary suffering. Where the disease of the rectum consists of mere distension, with debility, the veins being varicose, washes of soap and water, or equal parts of milk and lime water used once a day, and cold alum water, will speedily relieve the local disease. Sixty grains of alum to half a pint of water will make a wash sufficiently strong, unless a styptic effect is desired to check profuse discharges; in which event, the strength of the wash may be increased two-fold. Where the internal tunic appears excoriated, lime water, milk and honey, have been found to restore the mucous coat to a healthy condition. During the use of the washes, of all varieties, the bowels are to be regulated by cold water injections, and aperients, such as sulphur and cream of tartar, or the electuary. Magnesia is rarely admissible in this affection. The patient afflicted with piles

should be furnished with a syringe, and directed to wash out the rectum after each operation from the bowels, until the cure is completed. I have not found it necessary to wash after the first day or two, oftener than once in two or three days, with the medicated articles.

Again, where the rectum is loaded with varicose and fleshy tumours, inflamed and irritable, the active form of inflammation must be subdued by leeching and general remedies, before the sack can be introduced. In such cases, the solution of belladonna applied within the verge of the anus, relaxes the parts, and prevents pain from the introduction of the sack. The washes, which I employ for the various forms of tumours, and morbid lesions of the mucous coat, at different times, in addition to those recommended in the mild form of the disease, are as follows:—The black and yellow wash, of the strength as recommended in the American Dispensatory—the solution of nitrate of silver, varied in strength from four to eight grains to the ounce of water—and the compound solution of the iodide of potassium, iodine, and extract of conium.

R. Iod. Potassium,	℥j.
Iodin,	gr. x.
Ext. Conii,	℥ss.
Aq. Fluv.,	f ℥iss.
M. et solve.	

At the time of using, add three ounces of water, which will sufficiently reduce the strength for a common wash, where the rectum appears to be generally thickened; but it should not be used on high inflammation of the parts. The same quantity dissolved in one

ounce of water, is of sufficient strength, to be applied with a sponge to the tumour, as a suppository, or applied by a pencil through a small speculum of two blades, which instrument is of great service in the treatment of tumours found within from three to three and a half inches from the verge of the anus. By the wash and the application of this compound of iodine, I have reduced many hemorrhoidal tumours: but the latter is not admissible in acute forms of the disease. The nitrate of silver should be used in the inflammatory form, as it uniformly subdues inflammation of the mucous membrane, which, alternated with lime water, is my preparatory wash during the acute stage. In some cases I have found the black and yellow washes disperse the tumours where the iodine had failed, and vice versa. In strumous constitutions the washes of iodine, nitrate of silver, and lime water, should be relied on as efficient, since mercurial action is uniformly injurious where the system becomes affected with it. During the use of these washes the constitutional symptoms are to be attended to, as functional derangement or inflammatory action may indicate.

Another or third order of the disease of the rectum, is that in which the tumours protrude at the verge of the anus. Where these are irritable and highly inflamed, warm emollients, alternated with cold applications, and leeches will give relief; and as a palliative, different compounds of opium and tannin will be required in the treatment of lying-in women. But I have found that these tumours can be removed by a suitable compress—the application of mercurial ointment and iodine, aided by the washes and the electuary. The compress I use is the old T bandage, with a



simple addition, and made by attaching two pieces of elastic webbing to the strap that passes around the pelvis, at the superior anterior spinous process of the ilium. This should be of sufficient length to reach the centre of the perineum where they are united to a single strap of sufficient length to reach the transverse strap around the pelvis, at its posterior portion, to which it may be fastened. There should also be attached on each side, a strap half an inch in width, to pass around the thighs. By these straps or stays, the front straps are prevented from encroaching upon the genital organs, and the bandage is more easily kept in its place. At the junction of these several straps a gum elastic or cork pad, of a wedge shape, an inch and a half wide at its base, its upper boundary rounded to an oval form, and presenting a surface one half an inch wide, will be found to rest easily and effectually on the parts. The whole should be covered with oiled silk or gutta percha. This simple bandage will enable the surgeon to apply the necessary force, and his pledgets of lint, saturated or covered with iodine or mercurial ointment, will be found effectual. The length of the pad may be increased to suit the relaxed condition of the perineum.

By attention to the constitutional symptoms, and a judicious use of the washes, ointments and compresses recommended, with the aid of the supporter, a very large majority of the afflicted may be relieved, if not radically cured. But as before intimated, the knife or ligature in certain cases must be resorted to, where the tumours become indurated, as the only means of effecting the cure.

There is a number of astringent washes, which may

be used in the treatment of the diseases of the rectum ; such as the decoction of oak bark, green tea, and sulphate of copper, all of which are frequently indicated. In the use of the injections, where violent pain is produced, the strength should be diminished, and for immediate relief starch and laudanum may be thrown into the bowel.

During the treatment of the diseases of the rectum with the washes and remedies directed, a due regard must be paid to the general condition of the system, to prevent local determinations to new parts, as the discharge and morbid action is removed from the rectum. For this purpose I have found alteratives indicated ; such as an occasional blue pill, with a sufficient quantity of saturated tincture of the apocynum cannabinum, taken daily to sustain the action of the bowels, to one, and not exceeding two motions a day. In constitutions affected with strumous habit, it is frequently more advisable to establish a drain by a seton in the calf of the leg, or in the arm below the insertion of the deltoid muscle, than to permit the piles to continue ; more especially if there be symptoms of disease of the lungs. The wonderful tendency of every part of the mucous membrane to sympathize, one part with another, is so well known that it is unnecessary to prove the necessity of removing the disease, even if its removal should render it necessary to continue the seton for a year or two. By this course I have procrastinated the fatal termination of tubercular disease of the lungs for years, in some, and in others removed the tendency to the complete development of organic disease of the chest. The importance of removing irritation from all portions

of the alimentary canal, must be manifest to every practitioner who has witnessed the extensive morbid alteration of the mucous membranes throughout the system in tubercular consumption; and is it to be doubted that one of the fruitful sources of the many deranged conditions of the digestive organs, and the lungs, is owing to the neglect of an early attention to the disordered condition of the rectum, which is contiguous with the principal organs of the economy.

It is an old theory that hemorrhoidal discharges are the efforts of nature to free herself from some disordered condition, which, if not thrown upon the rectum, would be directed to other organs. This doctrine is really inconsistent, as it conflicts with some of the sound and well known principles in physiology and medicine. This hypothesis was founded upon the absurd notion of a morbid tendency of the system to seek a new outlet to free herself from effete material, which is not in accordance with the efforts of nature, as observed in her movements, when not overpowered by surrounding causes. In such cases she would have her natural outlets called into exalted action, to throw off the effete material. I would ask if a morbid tendency, as some writers term it, is not disease in embryo, from which nature is unable to free herself at her natural outlets, and which constitutes morbid vascular action in some cases, and local disease in others? Also, if it is not an admitted axiom that morbid action, when established, is known to make its local seat upon the weakest and most irritable part of the organism? Hence, diseases of the rectum should not be regarded as a new outlet, established by nature, but by disease produced from causes

without and within the system. It would be equally consistent that hemorrhage of the lungs should be permitted to continue, as that of piles. Each disease originates from similar changes, though from different causes. For instance, piles is the consequence of impacted rectum and mechanical obstruction from the weight of the sigmoid flexure, by which the blood is prevented from returning from that organ. In hemorrhage of the lungs the blood-vessels give way in some cases, from mechanical obstruction, produced by tubercles, and in others from congestion; neither of which should be permitted to continue with a belief that nature is about to free herself from effete material by any new or unnatural outlets.

## GOUT.

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THIS disease, depending upon a peculiar diathesis, is supposed, in some cases, to be inherited, and in others, generated by other incidental causes and consequences. When it appears in the regular form, it manifests itself by local inflammation in and upon the fibrous tissues, with fever. The symptoms and progress are very irregular, and hence, it has been divided into acute, chronic, and retrocedent, by systematic writers.

In the regular or acute form, the attacks are irregular, being once or twice in the year with some, or as the system becomes impaired, more frequently in others. After the paroxysms are over, notwithstanding the system is apparently renovated, it leaves it more susceptible, and much more easily affected from slighter causes.

The premonitory symptoms are, a deranged condition of the digestive organs, with an empty, uneasy feeling in the stomach, a sense of weight, and distension of the abdomen, also with frequent acid eructations, costiveness, lassitude, drowsiness, disturbed sleep, depressed spirits, giddiness, white tongue, irri-



table condition of the bladder, and a deep red or muddy appearance of the urine. The appetite is also irregular, being voracious at times, inefficient at others, with nausea and occasional vomiting. In some cases, numbness is experienced in the lower extremities, with cold feet and legs; whilst in others there are discharges from the bowels, bladder, and bronchial membranes, denoting irritation of those surfaces; and the general symptoms are of a gastric, or dyspeptic order, previous to the attack.

The paroxysms, in the initial stage, generally commence in the latter part of the night, frequently arousing the patient by pain in the joints of the great toe, heel, or the instep, which is followed by a chill, or by chilly sensations that terminate in febrile reaction—increasing the pain and suffering. In three or four hours there is generally a slight remission of pain; when perspiration sometimes ensues, which appears to be controlled by the laws that govern intermittent fevers in the cold, hot and sweating stages.

The painful and hot stages of gout, vary from four to forty-eight hours without remission from the commencement of the chill to the sweating stage. During the remission, the patient sleeps more or less quietly, but every succeeding evening there is a return of both pain and fever, which abate in the after part of the night. On examination, the affected parts are found swollen and red, and the veins enlarged. In a few days after the attack, the part assumes an œdematous character, the inflamed part being remarkably tender, so that the weight of the bed clothes cannot be borne without increasing the already torturing pain. The duration of an attack of gout varies from ten to thirty

days; the first is generally short, but the subsequent attacks increase; after recovery from a regular fit of the acute form, the system is left in a better condition, and is somewhat renovated; but if the attack has been of the chronic order, such favorable restorations are not to be uniformly expected, as the liver suffers more or less from functional derangement, and sometimes from structural lesions. The stomach also, from the continuance of the disease, becomes permanently debilitated; and the tendons about the joints contracted and thickened, giving them an irregular and knotty appearance.

The chronic form of gout being the consequence of a deficiency in the energies of the digestive organs, or of repeated attacks of the acute form of the disease, with all other grades, depending upon the acute and sub-acute forms, I shall confine my remarks to these two grades, as the other varieties are the consequences of certain morbid conditions of the stomach, liver, kidneys, skin and general system.

In chronic gout the pain is most severe in the fore part of the night. The joint, or part affected, is swollen but not red, and sometimes the tumefied parts are of a purple color. This grade is liable to pass from one part of the system to another. The general, as well as the local fever, in this form of the disease, is mild, while the biliary and digestive organs are seriously deranged, and the tissues about the joints become thickened and contracted. In some cases there is an earthy matter deposited in the sheaths of the tendons under the cuticle and in the cellular membrane surrounding the joint. Where it leaves its external seat and attacks any of the internal organs,

it is termed *retrocedent*; and where it is wandering through the system, with an imperfect local seat about the joints, it is called atonic gout. This form has been known to make its appearance on the internal organs without any external appearance. Hence its resemblance to rheumatism, and the analogy between the two diseases in their progress and treatment, is very striking; and it is more than probable that the difference is to be found in their predisposing and exciting causes, with the peculiar temperament and constitutional predisposition, or habits of the patients; or in some cases, perhaps, where both parents are afflicted with the disease, their offspring may inherit the peculiar temperament so that the common exciting causes awaken the disease, though the usual predisposing causes be rigidly avoided.

The predisposing causes of gout, which are calculated to establish a gouty diathesis in the constitution, where the patients are clear of the disease; are, an habitual use of high seasoned, nourishing animal food, and the regular use of vinous or fermented liquors;—as we find a rich diet and indolent habits will bring on the diathesis, and at the same time we find that vinous and fermented liquors are an excellent auxiliary.

Of the proximate cause of the disease, there is however, a diversity of opinions advanced by the numerous pathological and practical writers, and as no two concur in all the particulars, I will give my views without intending to refute or sustain any of the theories, and leave the reader to determine the correctness of the principles by contrasting one with the other.

From the symptoms observed in my clinical pursuits, with the appearance after death, and with the

history and experiments given by others, it is clear to me that the proximate cause of the disease is owing to uric acid and the retained insensible and sensible transpirations, that should have been thrown off. As we find that the functions of the skin, kidneys, stomach and bowels are the first deranged, so we find, that the favorable termination of the disease is promoted, in proportion as these functions are augmented or improved, whether it be acute or chronic gout.

But it must be borne in mind that the retention of effete matter in the system is the consequence of other defects hereafter to be explained.

It is however universally acknowledged that high seasoned dishes, with vinous and fermented liquors, are capable of establishing the gouty diathesis in constitutions where there is no inherited predisposition to the disease; and also, that the chronic grade is owing to the peculiar condition of the system, or to the long continuance of morbid action established by the causes which give rise to the disease. Furthermore, it is known that the chemical products which are found in gouty subjects, though various, are the results of morbid action established in the system. First upon the solids on which those morbid products are generated, and the system being incapacitated to throw them off by the natural outlets, they constitute the proximate cause of gout. No one can possibly believe that a child is born with a specific gouty matter in the system; but at the same time it is equally evident that the offspring of gouty parents inherits a latent tendency from organization, ready to be called into action by slight causes calculated to establish the gouty diathesis. In all ages it has been the received

opinion that the gouty virus was generated, or produced by the disordered and debilitated condition of the digestive organs, which condition is the consequence of the causes referred to in this essay.

The succession of events that are necessary to establish a fit of gout, in the acute form, seems to me from the symptoms, progress and termination, to be produced and to take place in the following order:

- I. The habitual use of high seasoned animal food, vinous and fermented liquors, in those who are inactive, especially, establishes an exalted action of the digestive organs, from the quantity of blood invited to them by the materials taken into the stomach.
- II. The constant excited condition of the internal organs deranges the functions of the skin and kidneys.
- III. The failure of the functions of the skin and kidneys leaves the system charged with effete material, that should have been thrown off by the skin and kidneys, which further deranges the secretions of the system, and constitutes the proximate cause of the disease.

The dyspeptic symptoms, taken in connection with those of gout, with the blennorrhœal discharge from the bladder, and the yeasty ichorous green discharges from the bowels, alternating with constipation, most clearly prove the succession of events. The failure of the stomach, liver, skin, and kidneys, with the uric acid and the effete materials, which should have been thrown off, show that the fluids are contaminated, through the impaired condition of the solids, which react upon each other. In the chronic form of



the disease, the succession of events is the same, except the difference of the strength in the constitution, the same causes invite a greater afflux of blood to the stomach than is compatible with the strength of the organ and its functions, which establishes a similar chain of morbid alterations in the system, but of a chronic character. But in constitutions possessed of great vital energy, a fit or two of the gout, not unfrequently so deranges the digestive organs, that the subsequent attacks assume the nervous or chronic character. In support of this position let us examine the opinions of others touching on the same point. "It is generally believed," says Professor Wood, "that the most efficient causes in generating the gouty diathesis, and consequently in promoting it when inherited, are the use of animal food in undue proportions, especially of high seasoned meats and soups, indulgence in alcoholic drinks, and sedentary habits."

Dr. Eberle says, "The principal exciting causes of gout are intemperance in eating and in the use of spirituous liquors; suppression of habitual evacuations; violent or depressing mental affection; cold and humidity, redundancy of, and bile in the *primæ viæ*; fatigue both of body and mind."

From the general concurrence on this important point, it is manifest that those causes are well calculated to establish gout, by inviting a greater afflux of blood to the internal organs than is consistent with their functions. And where the internal tegumentary system has an excess of circulating fluids, there is a deficiency on the external surface, which impairs the functions of one by excess, and of the other by deficiency, and by a failure of the functions of the skin, with morbid

secretion in the *primæ viæ*. The kidneys are also deranged, as those organs are obliged to perform a double function in throwing off the effete material, that should have been thrown off by the skin.

At the same time it is known that where there are dyspeptic symptoms produced by the morbid condition of the secretions of the stomach and bowels, the uric acid is found to be more abundant even in diseases where there is no gouty diathesis. But it must be understood that the kidneys, in those cases, are equal to the demands of nature in eliminating the effete material, so as to keep the fountain pure. But in gout, the kidneys are debilitated by their vicarious action, from the failure of the skin; hence uric acid, and the obstructed secretions of the skin, are retained in the system, which establish gout. Some pathologists search for the origin of gout in the deranged condition of the organ, whilst others, such as Broussais and his disciples, consider it a simple inflammation of the stomach and bowels which they denominate gastro-enteritis, from their being supposed to be the chief seat of the disease. But the fact seems to me clear, that this disease, from the symptoms, cause and effect, depends upon the concatenation of deranged functions having their origin in the altered condition of the solids and the contamination of the fluids, which is the true pathological condition of the system in gout. When a critical survey is made of the origin, causes, symptoms, altered functions, organic lesions, and the therapeutical agents that are most efficient in the treatment of the several varieties of this disease, can it be doubted that the proximate cause of gout is the uric acid, and the effete material, which

should have been eliminated by the skin, this virus producing all the different varieties of gout treated of, by the various writers. It is found that the remedial agents which are best calculated to correct acidity, determine the fluids to the skin, increase the functions of the kidneys, correct the secretion of the liver, and quiet the nervous irritation—are the anchor of hope in the treatment of this painful malady.

The constant attendance of the gastric derangement, and the known tendency of these organs when deranged, to produce an increased quantity of acid within themselves, are well established ; which altered condition of the secretions of the stomach and bowels, produces various changes in the organic elements of the fluids, eliminated by the skin and kidneys. Hence, we find increased or diminished quantities of earthy salts, in the urine, changing the appearance from a white sediment, to a deep brick red, in proportion to the combination of the lithiate of ammonia, or lithiate of soda and ammonia. These changes are frequently met with in different diseases besides gout, such as chronic hepatitis, dyspepsia, rheumatism, and many other diseases which proceed from similar derangement of the chylopoietic organs. In these diseases the system is adequate through the skin and kidneys, to free herself from effete material. But in gout, from long continuance of the morbid action kept up by acidity of the stomach, earthy deposits are generated, which are found in the urine, and which the emunctories are incapable of eliminating. The experiments of Dr. Phillips, show that animal food has a tendency to lessen the lithic acid and increase the phosphatic, and

that every thing which increases the action of the skin, has a tendency to increase the lithic, and diminish the phosphatic deposits. Sedentary habits and the production of acid in the stomach and bowels, render the skin inactive, which leaves the effete material that should have been thrown off by insensible and sensible perspiration, which, when retained in the system, is calculated to disturb the entire economy, and to establish diseases of different kinds. In different constitutions affected with gout there is a variation between the lithic and phosphatic diathesis. In the latter, besides the earthy salts referred to, is found the triple phosphate of magnesia and ammonia, with phosphate of lime, &c.

The symptoms produced by the lithic and phosphatic diatheses, are in many respects similar to those of gout preceding a paroxysm. The characteristics are pain, or uneasiness in the region of the kidneys, with irritation in the neck of the bladder and urethra, a frequent desire to void urine, with the usual dyspeptic symptoms, particularly acidity of the stomach, which makes the most prominent symptom of the lithic diathesis. In the phosphatic diathesis, the general symptoms are extreme irritability of the system, derangement of the digestive organs, manifested by flatulency, nausea, and constipation, alternating with exhausting diarrhœa, of variable colored stools, which are sometimes green, and at other times ashy and fermented.

The symptoms of these two diatheses, with dyspepsia, when contrasted with the symptoms of gout, are similar; and it will be found that the stomach in

each is the first deranged, which is evidence that the altered condition of the fluids, is a consequence of this derangement.

In each affection we also find the skin altered in its functions or color. In gout, the functions of the skin are deranged; in dyspepsia, its sensibility. In the other two affections, the functions of the skin alternate between an exalted and diminished action. In the lithic and phosphatic diatheses, the kidneys are frequently, (through the quantity of earthy salts thrown off by the organ,) deranged in structure, and the bladder, in some cases presents a similar condition, whilst in others, it contains calculous formations. These facts show that the natural outlet for this effete material is by the kidneys: when these fail, as in gout, nature throws it to the surface, and upon the white fibrous tissues, where it can do the least harm. Were it not for this inherent power of nature to resist and transfer those obnoxious materials to the white tissues, the system would be overwhelmed with irritation and inflammation. But the organism is so constructed that many of the fatal poisons have but little effect upon the white tissues and white fluids, which, if brought in contact with the more vascular parts, would produce morbid action or death. Hence in retrocedent gout, as it passes from the extremities to any one of the internal organs, the danger is increased, as the tissues are more vascular; and whenever the functions of the skin, kidneys, and digestive organs are restored, the system frees itself from the effete material by these emunctories, leaving the patient with a renovated system, until it is again



overcome, by the same causes. Therefore I infer that gout may be considered as dependent upon the following causes.

- I. By inheritance—where both parents are affected with this disease, the offspring has an inherent predisposition in his organization, which makes him more susceptible to the causes calculated to establish gouty diathesis.
- II. The gouty diathesis is produced by highly seasoned dishes of animal food, with the occasional use of vinous and fermented liquors, and a deficiency in the proper exercise, to keep the imports and exports of the system equal.
- III. The derangements of the solids are produced by ingestion in the stomach, and the altered condition of the fluids is the consequence.
- IV. The derangement of the digestive organs, disturbs the functions of the skin and kidneys, which leaves the system charged with effete materials, that should have been thrown off by the healthy action of these emunctories.
- V. In acute gout the lithic diathesis generally predominates, which is owing to the inflammatory action of the system.
- VI. In chronic gout, the phosphatic diathesis predominates, which is owing to the weakened energies of the system. This is manifested by the ammoniacal odor of the breath and perspiration.
- VII. The lithic and phosphatic diatheses are the consequence of the deranged functions of the chylopoietic organs, skin and kidneys.

VIII. Retrocedent gout is that form of the disease which leaves the extremities, and seizes upon the most irritable internal organ.

From these premises which are believed to be correct, it is manifest that the gouty diathesis is produced by the causes above mentioned. Hence the disease is curable, until the digestive organs have become impaired, by organic disease.

#### TREATMENT.

The treatment of gout is necessarily divided into that which is *required* during the paroxysm of the acute and sub-acute forms; and that which is *requisite* during the intervals of the paroxysms; where the disease commences under the acute form, the general treatment must be somewhat antiphlogistic, in accordance with the inflammatory action and general plethora of the system. But it is seldom that general blood-letting is admissible, as there are many gouty constitutions which are easily prostrated by the loss of a small amount of blood taken from the arm or foot, and as metastasis to some one of the internal organs is liable to follow. In cases where the inflammation is violent about the joints, and general remedies fail, leeching and cupping are indicated.

The most prudent antiphlogistic course, is that of cathartics of a mild character, with alteratives, diaphoretics, and diuretics. By this course the remedies correct the morbid condition of the system, and gradually remove the local disease. In the use of purgatives of any kind, it should be understood that as the disease is produced by the derangement of the stomach, and the altered condition of the secre-

tory organs, no irritating purge should be administered, or permitted to act so freely as to produce exhaustion; as either would be liable to invite the gout to the stomach or bowels. When the liver is torpid, a moderate dose of calomel should be given, and followed in eight hours by magnesia and epsom salts, or any saline cathartic, to free the primæ viæ from acrid secretions. After which the bowels should not be moved more than once or twice in twenty-four hours. For this purpose the liquid form, or common magnesia, with twenty or thirty minims of the wine of colchicum may be given every six or eight hours, according to the urgency of the symptoms. In some constitutions this quantity of colchicum will produce excessive nausea, or act as an irritant upon the bowels; in either case the dose should be diminished, or less frequently given; and if the irritation of the bowels should continue, when the inflammatory symptoms have been subdued, a full dose of Dover's powder should be given at bed-time. In the use of colchicum, no barrier is presented to the employment of any other purgative; this is of great advantage, as the liver is so frequently deranged, requiring an occasional use of a moderate dose of calomel, or blue mass, to regulate the secretions, either of which when resorted to, should be purged off by a dose of magnesia and epsom salts. Colchicum and purgatives are indicated, with Dover's powder, or black drop, (to abate the irritation,) where the active form of inflammation has been subdued; these will generally restore the patient to ordinary health. But in some constitutions the colchicum seems to fail in determining the fluids to the surface, and in promoting the secretory func-

tions of the kidneys, and fails to give the prompt relief that is usually expected. In such cases it will generally be found that the patient has acidity of the stomach and bowels, with high colored urine; when the bicarbonate of potassa, given in conjunction, two or three times a day, will give relief, where the colchicum alone has failed. The dose of this alkali is half a drachm. The decoction of dandelion I have found a valuable adjunct to the colchicum and bicarbonate of potassa. Where there is much irritation of the kidneys and urinary passages, and much listlessness from the morbid condition of the skin, the spirits of nitric ether may be advantageously added to the decoction of dandelion.

When acute gout attacks one of the internal organs in the commencement of the disease, or by metastasis from the extremities, it must be treated in accordance with the importance of the organ, and the violence of inflammatory action. Bleeding from the arm sometimes becomes necessary to save life, as the danger is owing to the local seat of the disease. Where the pulse is strong, a resort to the most efficient agents is necessary to prevent inflammation. Leeching or cupping over the inflamed organ, is frequently required, with the use of sinapisms and blisters, the salutary effect of which is much increased by a warm emolient cataplasm applied as soon as the plaster is removed: the treatment subsequent to the acute stage of attack on the internal organs, is the same as directed in the general treatment.

The treatment of the local inflammation of the joints, rarely requires more than quietude of the part affected; but where the inflammation is violent, and

threatens internal injury to the joint, a few leeches should be applied, after which warm water should be poured upon the joint until the pain is subdued. When the pain is thus overcome, the joint should be covered with a wilted cabbage leaf or a warm cataplasm of slippery-elm bark. Over the cataplasm or leaf, a flannel roller should be applied, of sufficient tightness to give support to the feeble vessels without producing pain. By the use of the warm water, roller and cataplasms, alternated and frequently changed, I have been enabled to control the inflammation and mitigate the suffering without leeches, affording more comfort than can be procured from all the lotions in use.

**CHRONIC GOUT.**—The treatment in this form of the disease, differs but little from the constitutional course in the acute form. Purgatives should be cautiously administered to remove constipation, and not permitted to act too frequently. The colchicum should be similarly used, or rather less frequently; and where it irritates the bowels, a few drops of laudanum should be given with each dose. Where there is much restlessness and pain, and general remedies fail to relieve, Dover's powder or hyoscyamus should be given in sufficient doses to quiet the system. To regulate the bowels, where an alterative is not indicated, the most efficient purgative is two drachms of rhubarb in a gill of boiling water. To this, after being covered thirty minutes, strained or filtered, add one drachm of soda and fifteen drops of the essence of mint; one-third of this should be given every three or four hours until the bowels are moved. The bowels should be moved at least once every day, and not exceeding twice, as the system may be reduced to a point from which it will



not easily recover. In this form of the disease the liver and kidneys are so frequently deranged, with a general debility of the stomach and bowels, I have found it advisable in some cases to discontinue the use of the colchicum after the first violent symptoms were subdued, and to substitute a decoction of dandelion, with the bicarbonate of potassa or soda; and where considerable debility exists, the cold infusion of the *prunus virginiana* is an excellent tonic for the stomach. The decoction of dandelion should be made by boiling three ounces of the root in a quart of water down to a pint, which quantity is sufficient for each day, with one drachm of the bicarbonate of potassa, or one drachm and a half of soda. The soda may be omitted as soon as the acidity of the stomach is removed and the secretions of the kidneys established. The blue pill, combined with one grain of the extract of conium, to three of the mass, has given more satisfaction as an alterative, than the mass alone. Where the bowels are inclined to constipation, and the liver becomes torpid, a pill formed of equal parts of aloes and blue mass, will prove a good aperient and alterative. The pill which I have been in the habit of using is composed of blue mass and aloes, of each one drachm divided into twenty-four pills, one of which should be given every second or third night until the secretion of the liver is established. In chronic gout, opium, in some one of its forms, is more frequently required than in the acute form, and more especially where the atonic form gives rise to great nervous irritation. In such constitutions, a half grain of *ipecacuanha*, ten grains of soda, and one sixteenth of a grain of the sulphate of morphia,

given in one ounce of water every four hours, will quiet the nervous irritation, and abate the low febrile action. The morphia should be increased where the stomach is very irritable, and the ipecacuanha diminished. The *cimicifuga racemosa*, in this form of the disease, is more soothing to the nervous system than the opium, though not so prompt in its effect; yet it is as certain, where the system is brought under its influence, as its effect is durable. Put two drachms of the root coarsely powdered, into a half pint of water, which, after boiling ten minutes, should be left till cool and filtered. The dose of the decoction, is two drachms every three hours, taken in the dandelion decoction, if the kidneys are deranged; or in the cold infusion of the *prunus virginiana*, if the stomach is debilitated. This article, when given in combination with those articles, as indicated, will be found, in addition to its soothing action upon the nervous system, both tonic and alterative. When the gout is thrown upon the lungs, and produces the symptoms of asthma, the decoction, or the powdered root, will give more certain relief than any other remedial agent; but when there is febrile action, three grains of ipecacuanha and one drachm of soda should be mixed in three ounces of water, half an ounce should be given every three or four hours, as the symptoms demand and the stomach will bear, without suffering too great nausea,—or if there is a harassing cough, three or four drops of laudanum to each dose of ipecacuanha should be given to remove the irritation.

In this chronic grade of the disease, a separate species of nervous gout has been noticed by many of

the writers, perhaps from its wandering tendency and diversified violence. But this division is better calculated to divert the mind from the true seat and nature of the disease than to assist in discovering its character, or the remedial agents indicated;—as it must be manifest to every observant physician, that the nervous gout is owing to the same cause as the acute or sub-acute forms, and the only difference is due to the morbid condition of the nerves at their extreme terminations on the two tegumentary systems. The nerves which terminate upon the internal tunic of the bowels are brought into this condition, by their morbid secretions, which either establish a chronic grade of inflammation, or a morbid irritability, producing the same effect, and by the uric acid being thrown to the surface, their extreme terminations are similarly deranged. Hence this nervous condition, in chronic gout, is influenced by changes in the atmosphere, like rheumatism, in proportion to the derangement of the functions of the digestive organs; and as the secretions and strength of the digestive organs improve, so is the abatement of the neuralgic condition; which makes it manifest that the loss of tone of the organism, with the deranged condition of the functions, and the irregular form of the morbid action, gives rise to those irregular seats of the disease in different parts of the body, requiring such a variety of remedial agents. For instance, in some cases the inflammatory symptoms require leeching, cups, colchicum, saline cathartics, alteratives, sinapisms, blisters, &c.; whilst in the intermittent form, where the disease assumes the character of inter-

mittent fever, with regular paroxysms, quinine given in large doses gives relief; and where the system is anæmic, chalybeates are required; and in the neuralgic form, the saturated tincture of the apocynum cannabinum, given in sufficient doses three times a day, to regulate the bowels, with a full dose of Dover's powder at bed-time, where the pain is severe, will be found an efficient remedy. In cases where the disease assumes the character of chronic rheumatism, the same tincture as above mentioned, mixed with equal parts of the ammoniated tincture of guaiacum, and given three times a day, will remove the disease. A half a drachm of each is the quantity I have been in the habit of giving; and at the same time when there is extreme debility, the subcarbonate of iron should be given in full doses, every night at bed-time. Where the chronic gout attacks, or is translated to the internal organs, the irritation or functional derangement is not materially different from that produced by other causes. Hence, in gastric derangement, it should be treated as if it was produced from dyspepsia; and the same may be said of the lungs, liver and bowels; the secretion must be corrected, the irritation controlled by the use of anodynes; and the local congestion removed by rubefacient embrocations, frictions, &c. In chronic gout, throughout the entire treatment, it must be borne in mind that the failure of the functions is owing to the debilitated condition of the organs, and consequently it is absolutely necessary to husband the strength of the patient during the treatment; and, as the disease passes off, to invigorate the digestive organs as rapidly as possible, by

exercise, mild tonics, and alterative medicines, as will be shown under the head of "treatment for the change of the diathesis."

The local treatment of the inflamed joints in some cases requires the use of some remedies in addition to those recommended in the acute forms of the disease ; but local applications, if not cautiously used, are more likely to do harm than good. Cases which require warm water, cataplasms, and flannel rollers, as directed in the acute form of the disease, may sometimes require leeching, though this is rare. In those cases where warm water fails to give relief, steaming the joints with the vapor of vinegar, soothes the part, and enables the constitutional remedies to control the morbid action. Where the joints are enlarged, and the parts left sore and œdematous, the camphorated liniment, applied twice a day, before applying the slippery elm cataplasms and roller, frequently facilitates the action of the absorbents, in the removal of the soreness and swelling. The local remedies to remove gouty concretions, where the parts become ulcerated, are very much the same as those recommended for inflamed gout. The part should be regularly dressed with warm slippery elm poultices ; and nature, assisted by the use of bandages, or such chemical applications as the condition of the parts may indicate, will speedily remove the chalky concretions. For the enlarged, or thickened indolent tumours, that sometimes form on the tendons, a vinegar vapor bath, a Burgundy pitch plaster, worn upon the part, and the bandage, will give relief. Where the tendons become contracted, the same applications and same remedies, aided by frequently



pouring warm water upon the parts affected, and keeping them warm with silk, fur or buckskin, to prevent the atmosphere from acting upon them, will restore them to their natural action, unless the general health is reduced below the standard of recovery. In which case, no set of remedies can do more than palliate and procrastinate the morbid tendency. In the treatment of acute or sub-acute paroxysms of gout, I have given no directions for the diet that is necessary to be used, as such directions can only be given by the physicians in attendance.

Having thus closed my remarks in relation to the treatment of the paroxysms of gout and their various stages, I shall proceed to the consideration of the treatment necessary to free the system from the gouty diathesis.

Where this diathesis is of long standing, I readily concur in the opinion, that it cannot be removed; but as the causes of the disease are under the control of the patient, it follows, that where *organic disease* has not commenced, the cure is also under our control. I therefore protest against the hypothesis advanced by writers, "that we cannot remove the diathesis."

The time to effect a cure of gout, is during the interval of the paroxysms. The treatment during the paroxysms is designed only to remove the morbid action in the system produced by antecedent and proximate causes. The treatment for the cure of the disease is to be found in the course that will remove the cause and restore the impaired functions of the organism, by prophylactics adapted to the morbid condition of the system.

The remedies that have hitherto been recommended

to moderate, or to prevent a recurrence of gout are numerous, but it must be manifest that all remedial agents are alike abortive as long as the cause that gives rise to the gouty diathesis is constantly in action. But would this be the case, if the causes, (by suitable remedies, diet and exercise) were removed, and the healthy action of the stomach, liver, kidneys and skin restored? I believe the medical world would answer this question in the negative; for it is known that the gouty diathesis, even where it had been of long standing, has been removed by daily labour being substituted for luxurious indulgences; which conclusively shows that there is not so much danger, as some authors would imagine, in changing old and long established customs, which, if continued, must necessarily shorten the life of the patient, or render him incapable of enjoying the span allotted to his existence. From my own experience, and the experience of ages, it is proved that many have been relieved, even though their paroxysms have been numerous, by a well directed course of remedial agents, diet and exercise; but not without the patient concurs in the prescriptions and boldly and resolutely adheres to the directions. In the early stages, self-government and resolution alone, in exercise and diet, have in many cases removed the gouty diathesis; but after the digestive organs and the nervous extremes become morbidly deranged, upon the internal and external tegumentary systems, it requires not only courage and confidence, but the assistance of art to aid in restoring the organism to a healthy balance.

The principal causes of this disease, as before stated, are, a too free use of vinous and fermented liquors, and

highly seasoned dishes of animal food, without exercise necessary to carry off its effects, added to a hereditary predisposition. But I do not believe the use of spirits is capable of producing the gouty diathesis without the collateral accompaniment of rich animal food and sedentary habits; and the latter will produce the disease without the addition of the liquors. In some constitutions, however, the two combined will necessarily develop the disease much earlier than diet alone. Hence the primary cause is generally under the control of the individual, not only to effect a cure of the disease in its incipient stage, but to assist the remedies in removing the diathesis of long standing. In the cases where long continued functional derangement has produced organic disease in some of the vital organs, remedies can only procrastinate the fatal tendency and mitigate the suffering of the patient.

As a well regulated course of diet, exercise and clothing are sufficient without additional aid, to free the system from the gouty diathesis, it will be necessary to notice each before proceeding with the treatment.

Diet, being one of the remedial agents in the treatment of gout, it should be borne in mind that the nervous extremities and capillary vessels of the mucous membrane of the stomach and bowels are the first deranged by the direct application of food and drink; and I believe it may be assumed as a pathological axiom, that the functions of secretion are never deranged without irritation being established in the extreme capillary vessels and nerves. Hence the necessity, in the treatment of gout, for the removal of the diathesis, that the diet be easy of digestion and taken in moderate quantities. Where the food resists

or burdens the digestive powers, besides making a direct irritating impression upon the stomach, it not unfrequently is thrown into ferment, and evolves new products in this organ—such as gas, acidity, &c., which increase the irritating qualities of its contents. Besides these consequences, from the retention of the materials in the stomach and bowels, the muscular coat of the alimentary canal is debilitated by the over distension produced by the gas, which derange the functions of the liver, skin and kidneys, and soon establish the paroxysms. Where this condition has been once produced, very slight errors in diet, assisted by sedentary habits, produce a recurrence of the disease. Consequently, no general rule or course of diet can be made out that would meet the diversified condition of the secretions and debilitated organs of the system, further than to direct the patient to avoid all articles of diet that are difficult of digestion, and in proportion to the debility of the stomach and inflammatory symptoms, to diminish the quantity and quality of the articles used. Notwithstanding there is no general rule in relation to quantity and quality, the gouty patient should avoid roast beef, smoked meats, rich soups, butter, veal, fresh pork, ducks, geese, fish, clams, lobsters, pastry of all kinds, fruits, pickles, and all the vegetables in use, except tomatoes, common and sweet potatoes, when at maturity. Half grown potatoes are very indigestible; but there is an abundant list of articles left for the invalid; and experience will soon enable him to select that which is most easy of digestion. In all cases the quantity is more to be dreaded than the quality. Bread should

be well baked and used cold,—coffee and green tea, if used at all, should be used sparingly.

Exercise in the open air, on horseback or otherwise, should be taken every day, in proportion to the strength, and the quantity of food taken into the stomach. The best time for exercise is from sunrise until eight o'clock in the morning, and from four until seven in the evening. In the winter from two until four. The clothing should be warm with flannel worn next to the skin. That which is worn during the day should not be worn at night, as the insensible perspiration is likely to be absorbed, and of course perpetuate the gouty diathesis. The feet should be kept warm and dry.

By exercise, diet and the proper clothing, where the digestive organs are not impaired by the gouty diathesis, the disease may be removed without the assistance of medicine. But where the dyspeptic symptoms have been fully established, with derangement of the functions of the liver, skin and kidneys, it will require the joint efforts of the patient and the skill of the physician to free the system from the morbid action.

#### TREATMENT.

The treatment of the gouty diathesis for the final cure of the disease, for the convenience of illustration, will be divided into two orders. That which will be proper in constitutions where the system apparently recovers during the intervals of the paroxysms, except the derangement of the stomach and the alternate derangement of the bowels, will first receive attention.



The next object of the practitioner will be to assist the enfeebled organs in the performance of their functions.

Where the system has been so far deranged by the morbid action, as to disturb the functions of the stomach, liver, kidneys and skin, during the intervals of the paroxysms, manifested by alternate derangement of the stomach and bowels, it will require considerable care in the use of the remedies, to adapt them to each individual case, so as not to debilitate the general system with the remedies required to assist the organs in the performance of their functions. For this purpose, to restore the failure of the liver, kidneys, skin, stomach and bowels, the saturated tincture of the apocynum cannabinum, as before directed, will regulate the bowels without producing debility, as it is alterative and tonic when administered in small doses. This tincture harmonizes, in combination with dandelion, eupatorium, prunus virginiana, and the various preparations of iron, with the mercurials,—such as pills composed of equal parts of aloes and blue mass, combined with ipecacuanha, which have been found in their action sufficient to sustain the secretions of the liver, where the dandelion and apocynum had failed to produce the desired effect.

The pill which I have used in my practice was formed of aloes and blue mass, of each one drachm, and ipecacuanha one scruple, mixed and divided into thirty pills, one of which was given every third or fourth night, until the secretion of the liver was established. But where the muscular system is much relaxed, the extract of the podophyllum should be substituted for the blue mass, or five drops of the

saturated tincture of the *sanguinaria canadensis*, given night and morning, with the tincture of the *apocynum*—either of which will act effectually on the liver, and should be discontinued as soon as the effect is produced. In cases where the tincture of the *apocynum* fails to restore the functions of the skin, the warm decoction of the *eupatorium perfoliatum* should be given in the afternoon, of each day, until the skin is brought to a healthy condition. One ounce of the plant to a pint of boiling water, will make the decoction of sufficient strength, which should be taken in two or three ounce doses every three hours, until perspiration is induced. Where the kidneys are not relieved by the tincture, the extract of dandelion, given every night at bed-time in the usual doses, or the decoction made from the fresh root, (which is preferable,) should be substituted. Three ounces of the root, may be boiled in a quart of water to a pint; a wine-glass full of this, given every three or four hours will restore the kidneys, and at the same time increase the functions of the liver and diminish the action of the heart.

In constitutions where the general alterative course fails to improve the tone of the stomach, the cold infusion of the *prunus virginiana*, or the cold decoction of the *eupatorium*, in small doses, is an admirable tonic. Where the patient is afflicted with diarrhœa, the tincture of the *apocynum* should be given in small doses, varying from ten to twenty drops, three or four times a day; and every second or third night, a small dose of scorched rhubarb, to check the too frequent discharges. The tincture alone, in small doses, I have found in mucous diarrhœa, equal to any

alterative; but in some cases, it may require the aid of a dose or two of calomel and Dover's powder, where the failure of the liver is the chief difficulty.

In chronic gout, where the muscular system and the digestive organs are constantly deranged, from the long continuance of the gouty diathesis, or otherwise from an originally feeble system, the entire surface should be washed with two parts water and one of rectified spirits, every morning, and wiped dry with a soft napkin, as harsh or rough articles have an injurious effect upon the skin. The bowels will be regulated by the saturated tincture, given in small doses two or three times a day. The decoction of dandelion is a mild tonic and a valuable alterative in chronic gout. In this form of the disease, if the stomach is much deranged, tonics and alteratives combined are required. For this purpose, I have found the compound tincture of *prunus virginiana*, as directed in page 88, in strumous habits, to quiet the nervous irritation, and invigorate the stomach, when given in drachm doses three or four times a day. During the use of the tincture, the acidity of the stomach will be corrected by soda or bicarbonate of potassa, and the bowels regulated by the tincture, or the aperient alterative pill, directed in the first form of this diathesis. In some constitutions, the stomach requires a stimulant, tonic and diuretic combined. For this purpose, I have found the following compound answer the purpose: Take *xanthroxylum fraxineum*, bark of the root, half a pound coarsely powdered—dandelion root, one-fourth of a pound bruised—*cistus canadensis*, one-fourth of a pound, of the root and plant coarsely powdered—diluted alcohol, two pints—macerate for fourteen days,

express and filter. This tincture is tonic, diuretic, stimulant and alterative; and may be given advantageously in all cases where the skin has assumed a yellow hue, or a dropsical aspect. If there are febrile symptoms it is contra-indicated. Dose as a tonic, one drachm three times a day, to be increased to a drachm and a half after it is continued a fortnight.

The remedial agents already recommended, will, in a majority of cases, remove the gouty diathesis; unless one of the important organs has become too far prostrated to be restored by their use. For instance, if the liver and stomach are not restored to a healthy condition by the alteratives and other remedies directed, nitric acid should be given as an alterative and tonic. This acid, when given in extreme debility of the muscular coat of the stomach, and insufficient secretion of the liver, has been found a prompt agent in imparting tone to the enfeebled organs. My mode of administering, is to commence with five drops, three times a day, mixed in a wine-glass full of flaxseed tea, which should be taken through a quill, to prevent the acid from acting on the teeth. The dose should be increased one drop every other day, and continued until its effect is produced, which will be manifest from a red streak in the centre of the tongue, when it should be discontinued, and a tea, made of two drachms of coarsely powdered columbo, in a pint of boiling water, and two drachms of soda, added subsequently, should be taken. A wine-glass full of this tea morning, noon and night, commencing its use on the third morning after having discontinued the acid, will be found to improve the condition of the stomach and augment the secretions of the liver. The soda in this

infusion, should be increased in quantity where the stomach is inclined to acidity, as alkalies, in a majority of cases, will not only be found a corrector, but a curative agent. In all cases I have found soda preferable to any other alkali where there was no lithic deposit in the urine; but in cases where this deposit is manifest, the preparation of potash is preferable. Consequently the alkaline preparations are to be used in connection with any of the general remedies, as the tendency of the stomach to acidity, or deposit in the urine, may indicate. These remarks are intended to apply to all grades of gout.

In this third grade of derangement, from the prostration of the digestive organs, and the morbid condition of the nerves, terminating upon the internal tunic of the alimentary canal, and the external surface it requires, to meet the diversified indications, both a general and local treatment to improve the tone of the system; for so long as the wandering neuralgic pain pervades the economy, the patient is so much disturbed that the functions of the organism are kept unhealthy. Hence the frequent demand for the use of opiates and anodynes in this nervous form, which is the most intractable in the gouty diathesis; which in many, is owing to a scrofulous diathesis existing in the system previous to the generation of gout. In others, the organic alteration of the liver, stomach, bowels and nerves, is the cause of the disease. Therefore, besides the remedial agents already mentioned for this wandering grade, I have found, by giving the saturated tincture of the *apocynum cannabinum*, combined with equal parts of the



tincture of guaiac, in doses from half a drachm to a drachm, morning, noon and night, to move the bowels once or twice a day, the neuralgic suffering will be relieved and the general system improved. In some constitutions, however, the tincture of guaiac is too stimulating, owing to the organs of the chest being affected, or to the extreme irritability of the stomach. In either case, the same quantity of the tincture of cimicifuga, added to the tincture of the apocynum, readily controls the nervous system, and frees the organs of the chest. The cimicifuga is an efficient agent in the treatment of the diseases of the chest, arising from any cause, except where high inflammatory action is established. By alternating the three tinctures, the atonic or wandering gout of the digestive organs, kidneys and skin, will be removed in all cases where there is no organic disease. Chronic rheumatism is relieved by the use of the same remedies. The compound ammoniated tincture of guaiac, is preferable in some cases to the tincture. The apocynum combined with these tinctures, controls their stimulating tendency, as this is emetic, cathartic and diuretic. The quantities of the apocynum directed throughout the treatment of gout, are designed to act as aperient, alterative, and diuretic; and when combined with other articles, facilitates their action. For instance, where it is given in combination with dandelion, it increases the secretion of the kidneys and liver, when in combination with the eupatorium, the skin, &c. The strumous habit being so generally extended throughout the human family, a very considerable number of patients afflicted with chronic gout or rheumatism, will be found much benefited by taking

the compound fluid extract of the *cimicifuga* as directed at page 91, in strumous habit; and where the symptoms denote derangement of the mesenteric glands, the hydriodate of potassa and iodine in the fluid extract, as above directed, will be useful. The frost wort in this compound is a powerful alterative, and is well adapted, in such cases, to restore the secretions and fluids to a healthy condition.

The external remedies required in the course of the treatment to remove the gouty diathesis from its local seats, are bandages, cold and warm water, applied generally to the parts affected. If the joints be affected and enlarged, warm water should be poured upon them for at least one hour every evening, and flannel bandages applied around the part as directed in the use of the roller. Where neuralgia is wandering more or less throughout the system, with a relaxed condition of the muscles,—if there is no marked organic lesion of the liver or organs of the chest—the patient should take the cold water sweat, once a week, by being wrapped in wet sheets twenty or thirty minutes, or, until free perspiration is established. For this purpose, two sheets should be wet and wrapped around the body, with two blankets over these, and warm applications to the feet and knees, until the system fully reacts from the shock of the cold water, which will occur in from ten to twenty minutes. In cases where the patient is fleshy, the sweating may be continued one hour, but if he be feeble, the wet sheets should be removed in fifteen minutes, and dry blankets wrapped around the body. To promote a free perspiration cold lemonade should be drank freely, until it is fully established.

By thus sweating the patient every six days, the stiffness, soreness and pain, throughout the system will be removed. During the intervals, the patient should wear a suspensory jacket, or a supporter, or roller around the body to retain the viscera of the abdomen in their proper position, which will enable them to perform their functions. In a large majority of cases of nervous gout, and rheumatism, the morbid lesion, in such grades of the disease, is to be found in the nerves of the internal tunic of the alimentary canal; and hence, one of the primary causes, that perpetuates morbid action, is owing to the muscular coat of the intestines having lost its tonicity, from the frequent distensions produced by the gas generated in them. In such cases the roller and the supporters, with the inversion of the body or the elevation of the hips, to restore the viscera to their proper position, are indicated. The rest of the external remedies required for the joints, are the same as recommended in the chronic grade of the disease, during the attack of the paroxysm.

Where the internal organs forbid the use of the cold sheet, the warm one used in the same way, will do much towards restoring the system; more especially, if the invalid will wash the surface every morning with two parts tepid water and one of spirits, as the skin must be kept healthy if a cure is expected. It is impossible to remove the gouty diathesis where the functions of the skin are impaired.

Cold water being a heroic remedy in the treatment of the disease, will require the best judgment of those who are acquainted with the organism of man, to direct its use—under such control it is one of the

most invigorating agents in the hands of the physician. But in the hands of the pretender it is not only useless, but dangerous, and notwithstanding it should be resorted to much more frequently than it has been, as it is a potent and useful remedy when timely and skilfully employed, yet it should not be recommended to the exclusion of other agents.

In conclusion, therefore, permit me to say, if the principles laid down in this essay are found correct, I hope they will be followed to the advantage of the profession and the afflicted. If wrong, perhaps my misconceptions of the animal economy may lead to further investigation, and eventually to the true causes and consequent judicious treatment of the disease.

## THE TONGUE.

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THE tongue being covered by a mucous coat which is continuous throughout the stomach and bowels, makes the appearance of this organ of more than ordinary importance, as an index to the numerous morbid changes to which the system is liable. I propose therefore a brief notice of some of the various alterations in its appearance as an assistant in detecting the true character of disease.

In the examination of this important organ, the condition of the fauces and mouth should be closely noticed, as those parts influence very much the size and color of the tongue, even in cases where the general system is not deranged.

The tongue is so intimately connected with the digestive organs, and the cavities of the chest and pelvis by contiguous sympathy, that it is an important diagnostic of disease; but as its appearance varies in different diseases, in proportion to their violence and local seat, I shall first notice the alterations peculiar to febrile diseases, acute, and sub-acute inflammations; and, secondly, those of debility, as in chlorosis, &c.



*First.*—In fevers, from simple functional derangement, the tongue is soft and slightly covered with a white fur, being more or less lubricated with salivary secretions, indicating partial suspension of the natural secretions. If the liver be the principal organ deranged, the fur, in a few days, will assume a sallow hue, with a diminished moisture of the tongue. This color and appearance will then be subject to daily change, if high irritation or inflammation supervene, and in proportion to the degree of morbid action will the coat change from a yellow to a dry brown appearance; but if the attack be within the alimentary canal, the changes of the organ will vary in proportion to the violence of the irritation, inflammation and local seat. An irritable stomach in febrile disease produces a white fur; if the irritability be increased, the tongue not unfrequently becomes clean, dry, and of a florid color. When the duodenum becomes the local seat of irritation or inflammation, the tongue is not generally as dry as when the stomach is similarly affected, and is more inclined to assume a bilious fur, though in other respects is similar in appearance. When the force of febrile action is thrown upon the jejunum, it varies from a natural appearance, through all the shades from white to a black dry coat; the tongue being more or less affected with nervous tremor. When the ileum is the local seat, it is coated most generally with a slightly whitish fur, which is liable to pass off in flakes, leaving the organ smooth, with a glossy red appearance; sometimes a smooth streak will be found in the centre, and fur on each side. In such cases, the tongue is contracted and very red at its edges, which denotes high irritation or the approach

of inflammation. All forms of inflammation of the ileum produce the symptoms of typhoid fever to a greater or less extent, and in febrile disease, of the small intestines, the nervous tremor varies in proportion to the morbid condition of the alimentary canal.

If the irritation or inflammation extends to the colon in febrile disease, producing diarrhœa, the tongue will be found red at its point and edges, its centre being sometimes furred and sometimes smooth; if internal congestion supervene, the tongue will assume a dark livid hue. In bilious remittent fever it presents the various appearances seen in all grades of fever, owing to the irregularity of the local seat of the disease. Hence the tongue may be smooth and glossy in one case, and red and dry in another, while in a third it may have a coat of bilious fur, and in a fourth a black, dry, rough coat at the centre, with the edges red and chapped so as to bleed.

In the forming stage of true typhus fever, the appearance differs from that of simple continued, or remittent fever, when the local seat of each is in the small intestines,—the white coat being thicker and more slimy; which, as the disease progresses, becomes brown, dry, and black, whilst in the continued or remittent forms, there is not the regularity as in typhus. In true typhoid fever, the fur and color are various; the coats are frequently thrown off, leaving the organ with different appearances, as before stated. But in all grades of fever, where the tongue has a red purple hue on its edges and under surfaces, it is an evident mark of secondary congestion, produced from high irritation or inflammation. In cholera such appearance was not present until after

the system had reacted and established inflammation, although in this disease the most extensive congestion prevails.

The tongue, in secondary fevers arising from wounds, contusions, &c., is variable, in accordance with the locality and extent of the injury. Where the scalp is wounded, establishing morbid vascular action, the tongue will be covered with a thick white fur in the onset, which will assume a bilious character in a few days, owing to the influence which wounds of the scalp produce upon the liver; but in wounds of other parts of the system, the thick white fur will vary from a clammy to a dry condition. In inflammation of the brain or its meninges, the tongue is contracted and pointed, and the fur of a bilious order. In all forms of fever where congestion supervenes so as to produce stupor, it is relaxed and expanded. In catarrhal affections and scarlatina, the papillæ may be seen protruding through the white fur, of a florid color; in catarrhal cases, the tongue may become smooth and red, but in scarlatina it rarely presents this appearance.

In sub-acute diseases located in either of the cavities, the appearances of the tongue vary in accordance with the organ affected, and the extent of the affection, and condition of the secretions. In dyspepsia the tongue is generally coated on its back portion, with a heavy fur varying in color from a darkish white, to a yellow; but in mild cases it is only slightly coated, and in proportion to the chronic lesions of the different parts of the alimentary canal, it varies in appearance, being sometimes red, livid, and smooth on its surface. If the liver be affected the fur is generally of a bilious

character, and where the system becomes debilitated it has a relaxed flabby appearance, with a long fur in the centre and back portion. In chronic hepatic or gastro-enteric diseases, the fur varies from white to yellow, and the contracted or relaxed appearance will vary in proportion to the irritability and tone of the system. In strumous habit the appearance must of necessity vary in proportion to the various stages and organs affected, so as to represent the alterations of the tongue as noticed by medical authors, under the acute and chronic forms, as all parts of the system are liable to be affected with the disease, giving rise, in the inflammatory stage, to the appearance of fur and other alterations as observed in the different stages of febrile disease; with the exception, that the tongue is found more uniformly relaxed, paler and more tumid. Where the disease terminates in tubercular phthisis, it generally retains its natural appearance, until the mucous coat of the stomach and bowels participate in the morbid action, when the tongue is smooth and soft, the result of general debility. The same appearance of the organ is produced from psoas abscess, white swelling, or any excessive drain from the system, which should admonish us in febrile disease, that debility is in combination with febrile lesions produced from inflammation, irritation or functional derangement. In a general debilitated condition of the system, produced from deranged functions, as in chlorosis, a very different appearance of the tongue presents itself, which is pale, tumid, with enlarged papillæ, and as the debility advances, the organ becomes paler, more flabby, and eventually smooth. Hence our diagnosis must be made from a

wide sphere of morbid changes ; in some cases from local causes, in others, from general defects—such as inherited diseases, functional derangements, inflammations and organic lesions. It is known that the most prominent marks are frequently delusive, from the fact that the affection is not always uniform. Many diseases that appear to be of a general character, are found to have their origin from some obscure local affection. In such cases the diagnosis can only be formed by taking into consideration the predisposing and exciting cause, and by watching the changes in the secretions produced by remedial agents. Therefore there is but one source to make out a safe and reliable diagnosis. This must be made by contrasting the healthy actions of the organism, and the morbid changes produced from surrounding causes. Those who expect, or hope to profit by correct diagnosis, must make themselves acquainted with the organization of man, and the symptoms that are likely to arise from the morbid action of the different systems composing the organism, together with the condition of the mental faculties, the tongue, skin, countenance, urine, expectorations or exhalations from the lungs, and from the alvine discharges. This acquaintance, with a careful exploration of the organs of the chest and abdomen, is necessary to form a correct diagnosis.



## APPENDIX.

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THE subsequent remarks would have been incorporated in the essay on Fever, had they not been overlooked until too late.

The theory and principles advanced in the preceding essays, founded upon the observations made in clinical practice, and upon a knowledge of the anatomical arrangements of the circulating and nervous systems, their ultimate radicals terminating upon the two tegumentary surfaces, and of the tendency of the solids and fluids to gravitate, most clearly prove that the God of nature has wisely arranged, for their protection, the various organs of the human system, agreeably to their importance and influence in health and disease. The brain, spinal marrow, with the organs of the chest, we find, are securely protected ; next are the organs of the pelvis and abdomen, which although equally important, would appear but slightly protected ; but when minutely examined, it will be found that where

they are liable to injury from concussion, they are enclosed by the diaphragm and ribs. Where they are slightly protected by the muscular parietes they have great mobility, and are less subject to injury from the accidents that are common to all. Hence, from their anatomical arrangement, it is manifest, that all the delicate parts of the system are equally protected, and secured against the casualties that might interfere with their harmonious action.

From such provisional protection is it not reasonable to suppose, that provision is also made for the protection and preservation of each part, separately and singly. The capillary vessels and nervous terminations, are abundantly supplied with the necessary protective principle, in their susceptibility and contractility, which enables them to withstand the effects of morbid agents, which make their impressions through the external or internal tegumentary systems, by absorption or otherwise, which is manifest from the physiological effects of medicinal agents; and as it is admitted that all agents; whether therapeutical or morbid, when brought in contact with the living system, make a local impression, from which is established an exalted or diminished action of the physiological functions, according to the properties of the agent, or nature of the morbid cause. This is manifested in the vital resistance that the system is capable of making, to free herself from the offending cause, be that what it may. Hence it is in proportion

to the vital susceptibility of the system, that physiological or pathological effects are produced by medicine ; and as it is evident that medicinal agents act favorably upon one set of vessels or organs, while they derange the functions of another set by exalting or diminishing their action ; thus it is by observing the laws in favor of life and health, that the practitioner is capable of determining the effect of remedial agents in the treatment of disease. In a similar manner the effect of the morbid agents is discovered, in the diminished power of vitality to reject, or free herself from the cause, which had gained the ascendancy over the resisting force.

Again, when vitality is inadequate, we find in some cases that morbid action is confined to a certain part of the system where the disease becomes local, or if a barrier be thrown around the offending cause to check its irritating effect, as is wonderfully displayed in the bite of a rabid animal. In this case, we find the wound closed, and the disease remains undeveloped for months, until the premonitory symptoms are displayed in an elevated, tumid appearance of the cicatrix, and pain in the course of the nerves, with marks of inflammation of the part first affected, which proves conclusively, that the vital resistance had for a time checked the virus within the vicinity of the wound, to prevent its specific influence upon the system. But from the fluidity of the virus, the barrier is penetrated, and hydrophobic symptoms established. Where

the cause is derived from a musket ball, the barrier established by nature would not only envelope, but exclude it from the sphere of vital action. But not so in the bite of the rabid animal; the old wound being the part that admonishes the patient of the approaching evil. The cicatrix becoming an open foul ulcer, is conclusive evidence that any poison, by nature's protecting system of vessels, is resisted for a time by the vital influence of the circulating and nervous systems at their terminating extremes. By the vital susceptibility of these extremes, the medicinal agents change their action, so as to give a salutary effect when directed in accordance with the nature of the morbid action to be overcome; but if the vital powers of the two tegumentary systems are below the point of susceptibility, the medicinal agent is inert. Consequently, it is obvious that the favorable action of medicine is a vital effort on the part of nature to free herself from the remedy administered for the cure of disease.

When we take a survey of the various theories from the time of Hippocrates, with the modifications by Galen, Celsus, Sydenham, Boerhaave and Stahl, we find the Humoral pathology the basis of medical faith, until the appearance of the nervous pathology, advanced by Hoffman and Cullen. The former has the credit of first calling the attention of the profession from the fluids to the solids. Hoffman based his theory upon the nervous system as being the first

impressed by morbid agents, establishing spasm of the capillaries; but Cullen was the perfecter of this new theory, to the overthrow of humoralism. Brown's theory advanced in opposition to Cullen, was an excessive or deficient excitement. Dr. Darwin embraced Brown's theory, with his ingenious addition and explanation by sympathy, which, in many particulars, have continued, with slight additions or variations, to the present time. During these ages, to the time of Clutterbuck and Broussais, fever was recognized as a general disease; but these three, with Bullard, considered fever the consequence of irritation or inflammation. Dr. Southwood Smith, extends his theory to a succession of occurrences produced by various causes. First, on the nerves; secondly, on the circulation; thirdly, on the secretory and excretory systems. Thus a disposition to return to the theory of the fluids, is manifest, especially from the writings of Drs. Stevens and Stokes of Dublin, and Dr. Burne, of London. Again: when we examine in connection, the theories of American authors—such as Drs. Chapman, Eberle, Jackson, Dunglison, Wood, and others, can it be doubted that a large majority of them base their theories upon the changes produced by morbid and medicinal agents upon the terminating extremes of the nervous and circulating systems? These theorists in their turn, have swept off a certain amount of rubbish from, and added new lustre to our progressive science. It is manifest that the ancient



and modern fathers of the science, also, have been influenced in their various theories from the changes they have observed in these two systems, as, whilst these vessels and nerves retain their vitality they resist the introduction of the fluid not congenial with their natural functions; and by this inherent endowment in the net-works of the blood-vessels and nerves, the vital machine is protected against the deleterious influence of opposing elements, and by its susceptibility to impressions from remedial agents, is enabled to throw off disease.

When the organization of the vital laboratory, contained within the abdomen and chest for the manufacture of the blood, and the laws of the animal functions, normal and deranged, are clearly understood; and when it is known what depurating organs should be checked or incited, and what are the therapeutical indications, which nature demands, then man need not be hurried off by functional derangement, but may live to the age allotted by his Creator.





